STATE OF LOUISIANA

DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF:

Tracking No. AE-CN-03-0338

FERRO CORPORATION *

EAST BATON ROUGE PARISH

*
ALTERNATE ID NO. 0840-00023

*

ELG. 1111 15 110. 0010 00020

PROCEEDINGS UNDER THE LOUISIANA * Agency Interest No. 3387

ENVIRONMENTAL QUALITY ACT *

LA. R.S. 30:2001, ET SEQ. *

SETTLEMENT

The following Settlement is hereby agreed to between Ferro Corporation ("Ferro" or "Respondent") and the Department of Environmental Quality, ("Department"), under authority granted by the Louisiana Environmental Quality Act, La. R. S. 30:2001, et seq., (the "Act").

I.

Ferro manufactures and processes specialty chemicals at its facility on-West Irene Road in Zachary, East Baton Rouge Parish, Louisiana. A consolidated permit, No. 1955, was issued on April 30, 1987 to replace various individual operating permits. On April 4, 1991, Air Permit No. 0840-00023-01 was issued. Since that time, numerous permit modifications have been applied for and granted. Ferro operates as a minor source of air emissions pursuant to Air Permit No. 0840-00023-12, issued on October 6, 2004.

Part I: General Air Quality Issues

Π.

In the context of reviewing its fugitive emission/leak detection and repair program (LDAR), the Respondent discovered improperly permitted and/or unpermitted emission sources existing at its

facility. These findings were self-reported to the Department, in correspondence dated September 19, 2003, and November 20, 2003, as well as during an October 6, 2003, meeting between Representatives of the Department's Office of Environmental Compliance and representatives of the Respondent. It was noted in the September 19, 2003, letter that the Respondent was undertaking a comprehensive investigation and review of its emission sources to confirm the information provided in the letter, such as the status of the tanks described therein, as well as to identify any additional emission sources which needed to be addressed. At the time of the September 19, 2003, letter, the Respondent stated that it had no information indicating that emissions from these sources had resulted in any off-site impacts or any danger or adverse impact to the public health and safety or the environment. According to Respondent, no off-site danger or impact to the public health has since been documented.

Ш.

On or about October 10, 2003, the Respondent and its consultant submitted to the Department the emission calculations for the unpermitted sources disclosed to the Department in the September 19, 2003, letter. This submission was supplemented on November 20, 2003.

IV.

On November 20, 2003, the Respondent notified the Department that some information provided and/or statements and certifications made in the past years to the Department may need to be revised because various emission sources were omitted or incorrectly characterized. The Respondent investigated this matter and the 2002 reports to the Department were revised as needed.

On December 3, 2003, the Respondent, through its consultant, submitted an application to amend its air permit to reflect identified permit deficiencies.

VI.

On or about May 25, 2004, a Consolidated Compliance Order & Notice of Potential Penalty ("CCONPP"), Enforcement Tracking No. AE-CN-03-0338, was issued, providing Ferro with interim emission limitations for various tanks and/or emission sources at the facility and alleging that Ferro was not in full compliance with various environmental regulations, including those relating to the tanks and/or emission sources at the facility. Ferro operated as a minor source of air emissions pursuant to Air Permit No. 0840-00023-11, issued on June 12, 2003, when the CCONPP was issued. With the issuance of the CCONPP, Ferro reportedly complied with the applicable regulatory requirements cited in the CCONPP. Ferro submitted a permit modification application on or about December 5, 2003, to address the various tanks and/or emission sources listed in the CCONPP. Air Permit No. 0840-00023-12, based on the permit application, was issued to the facility on October 6, 2004.

VII.

The May 25, 2004 CCONPP, Enforcement Tracking No. AE-CN-03-0338, is attached as Exhibit 1 and is made a part hereof. The CCONPP made the following allegations, many of which relate to the self-disclosed tanks and/or emission sources:

A. The Respondent's investigation revealed that emissions from various tanks that are routed to its Plant Flare (EIQ No. 1-93) are not permitted to be routed to EIQ No. 1-93 and the emissions associated with those tanks were not considered in the calculation of emissions from this source. The unpermitted tanks are listed in the table below:

UNPERMITTED TANKS VENTED TO SOURCE 1-93 (ENCLOSED FLARE)

TR701	TS487A	TS487B	TP7057
TP730	TS478B	TP2130A	*T-1 Reflux
TR601	TP7050	TP2133A	*T-2 Reflux
TP480	*TR703	TP2133B	*T-3 Reflux
TP486	*TR702	TP500	TP501T
TS436A	TS6629		

^{*}The Respondent reported that these tanks are not permitted to be routed to Emission Source 1-93, but have no emissions associated with them.

Each tank that was routed to this source but not permitted to do so and each unpermitted pollutant from each tank that was emitted from this source is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a permit modification application on December 3, 2003, listing all emission sources routed to EIQ Number 1-93, along with emission calculations for each source, and seeking increased emissions limits for certain pollutants. The Respondent requests interim authorization to operate the currently unpermitted emission sources routed to EIQ Number 1-93, within emission limits as requested in the permit modification application.

B. The Respondent's investigation revealed that several tanks (TS436E, TS437, TS478C, TS479, TS481, and TS484) that are permitted to be routed to Emission Source 1-93 were originally believed to have no associated emissions and were originally permitted as such. However, the Respondent reportedly discovered that these tanks contribute to the emissions to EIQ No. 1-93. Each unpermitted pollutant from each tank that was emitted from this source is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a permit modification application on December 3, 2003, listing all emission sources routed to EIQ Number 1-93, along with emission calculations for each source, and seeking increased emissions limits for certain pollutants. The Respondent requests interim authorization to operate these tanks routed to EIQ Number 1-93, within emission limits as requested in the permit modification application.

Additionally, the following permitted tanks are vented to EIQ Number 1-93 and contribute to the permitted emissions from this source:

TP415A	TR413B	TS554	TS704	TS553	TS6637	TR6601
TP417A	TR413C	TS574	TS711	TS1049	TS6638	TR6602
TP424	TS432A	TS575	TS714	TS1075	TS6639	TR6603
TP429	TS545	TS576	TS770	TP601	TS6640	TS6633
TP430	TS546	TS671	TS771	TS703	TS6641	TS6634

TP1023	TS552	TS672	TS6636	TS6643	TS6642	TS6635
TR413A						

C. The Respondent's investigation revealed that emissions from various unpermitted tanks that are routed to its BZPA Scrubber (EIQ Number 11-82), were not considered in the calculation of emissions from EIQ Number 11-82. The tanks are noted in the chart below:

TP1003	TP1086
TP1021	TP1087
TP1022A	TP1082
TP1024	TP1018
TP1043	TR1085
TP1044	TR1028

Each unpermitted pollutant from each tank that was emitted from this source is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a permit modification application on December 3, 2003, listing all emission sources routed to EIQ Number 11-82, along with emission calculations for each source, and is seeking increased emissions limits for certain pollutants. The Respondent requests interim authorization to operate the currently unpermitted emission sources noted below routed to EIQ Number 11-82, within emission limits as requested in the permit modification application.

Additionally, the following permitted tanks are vented to EIQ Number 11-82 and contribute to the permitted emissions from this source:

KO1041	TP1002	TP1041
TR1001	TP1004	TP1047
TR1010	TP1005	TS1051
TR1040	TP1011	TS1052
KO1051	TP1012	TS1052A
KO1004	TP1020	

D. The Respondent's investigation revealed various tanks which are vented to the atmosphere and which are not identified as emission sources in the Respondent's permit (TP2181, TP7000A, TP7000B, TP7030, TP7035, TS209, TS477A, TS477B, TP400, TS2100, TS915A, TP1014, TP1017). Each emission of each unpermitted pollutant that was emitted to the atmosphere from these sources is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a permit modification application on December 3, 2003, listing all emission sources vented to the atmosphere along with emission calculations.

E. The Respondent notified the Department that tanks TP900A, TP900B, TP901, TP908A, TP908B, TP909, TS902, TS903A, TS903B, and TS904 in the CCB Unit, which were previously permitted to vent to the plant flare (EIQ Number 1-93), are no longer connected to the plant flare. The Respondent reported that the tanks were disconnected from the plant flare sometime between January and September 2003. The tanks vented emissions to the atmosphere from the time that they were disconnected from the flare until the time that they were emptied and cleaned in December 2003. Each unpermitted pollutant that was emitted to the atmosphere from each source is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. For operational flexibility to allow these tanks to be utilized in the future, the Respondent submitted a permit modification application on December 3, 2003, to permit these tanks as individual storage tanks.

F. The Respondent's investigation identified various tanks which are not identified as permitted emission sources in the Respondent's air permit. The tanks are listed in the table below:

TANK NUMBER	DESCRIPTION/CONTENTS
TS556	Diglyme Storage Tank
TP1013	Peroxide Addition Pot
TP1031	Melt Tank
TP1027	Bleach Tank
TP491	Used Oil Tank
TS1004	Vacuum Pump Oil Stg. Tank
TP905	Carbon Black Oil
TS999	CCB Slop Oil Tank
TP603	TR 609 Receiver
TP607	Ethylene Carbonate Storage
TP608	H.P. Reactor O/H Receiver
TP610	Ethylene Carbonate Storage
TP452	Reflux Pot
TP482	Azeotrope Column Reflux Drum
TP6605	EC/PC Blend Tank
TP6607	DEC Storage
TP6608	DME Dryer Tank
TP6609	THF Tank
TP6614	Mix Vessel
TR6612	Reactor
TS6613	Electolytes Tank
TS6615	NO. 35 Storage
TS6616	NO. 35 Storage
TS6617	NO. 35 Storage
TS6618	NO. 35 Storage
TS6626	DMC Dryer

TS6630	PC Storage
TS6631	DXL Storage
TS6632	DME Storage
TS2185A	Groundwater Treatment Tank
TS2185B	Groundwater Treatment Tank
TS512	Sodium Weigh Tank
TS522	Sodium Weigh Tank (New)
TS550	Sodium Storage Tank
TS587A	Elec. Glyme Storage
TS587B	Elec. Glyme Storage
TR7015	Flash Pot
TP725	Heating Oil Tank
TP302	West Make Tank
TP303	NPES Tank
TP304	Lime Slurry Tank
TP351	BHT Slurry Tank
TP352	Zn St Make Tank
TP352B	Stearate Adjustment Tank
TS348	Large Part. Stearate Storage
TS350	Food Grade Stearates
TS345	Storage Tank
TP725	Hot Oil Tank
TP354	Storage Tank
TP313	NP-10
TS211	CAST
	Turbine Oil Tank
	Used Oil Tank
	Polyglyme Filter
	Sample Pot With Oily Sludge

Each emission of each unpermitted pollutant that was emitted to the atmosphere from each of these sources is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. These tanks may qualify for inclusion on the Respondent's "Insignificant Activities" list pursuant to LAC 33:III.501.B.5.A.2, 3, and 4. The Respondent submitted a permit modification application on December 3, 2003, updating its list of "Insignificant Tanks", along with emission calculations for each. The Respondent requests interim authorization to operate these emission sources noted in the chart below, which total proposed emission limits do not exceed five tpy.

Additionally, the Respondent operates the following tanks that are currently permitted to contribute emissions to the Respondent's "Insignificant Activities" list:

TANK NUMBER	DESCRIPTION/CONTENTS
TP301	Calcium Stearate/Water
TP312	Calcium Stearate/Water
TP360	ESBO
TP1071	Tripropylamine
TP1072	Tripropylamine
TP1025	25% NAOH
TP1026	15% NAOH
TR6601	Dimethyl Carbonate/LiPF6
TR6602	Dimethyl Carbonate/LiPF6
TR6603	Dimethyl Carbonate/LiPF6
TS306	Stearic Acid
TS308	Stearic Acid
TS310	Stearic Acid
TS311	Nonyl Phenol Surfactant
TS312	Nonyl Phenol Surfactant
TS341	Calcium Stearate/Water
TS342	Calcium Stearate/Water
TS343	Calcium Stearate/Water
TS344	Calcium Stearate/Water
TS347A	Calcium Stearate/Water
TS347B	Calcium Stearate/Water
TS353	Zinc Stearate/Water
TS551	Dry Flux Oil
TS555	Caloria H>T. Heating Oil
TS555A	Caloria H>T. Heating Oil
TS557	Glycol Ethers
TS558	Flux Oil
TS559	Flux Oil/MEOH/Glycol Ethers
TS560	Glycol Ethers
TS561	Glycol Ethers
TS562	Flux Oil/Glycol Ethers
TS563	Flux Oil/Glycol Ethers
TS564	Water/Glycol Ethers
TS566	Glycol Ethers
TS567	Glycol Ethers
TS568	Glycol Ethers
TS569	Glycol Ethers
TS570	Glycol Ethers
TS571	Tetraethylene Glycol
TS572	Flux Oil
TS577	Glycol Ethers
TS578	Glycol Ethers
	•

TS582	Glycol Ethers
TS583	Glycol Ethers
TS584	Glycol Ethers
TS586	Glycol Ethers
TS710	Chlorinated Polybutenes
TS724	PTSA/Water
TS910A	CCB
TS910B	CCB
TS1055	Dirty Water
TS1061	Ethylene Glycol/Water
TS1063	Ethylene Glycol/Water
TS1069TN	Tripropylamine
TS1069TS	Tripropylamine
TS2040	Diesel
TS2302	Diesel
TS6633	Dimethyl Carbonate/LiPF6
TS6634	Dimethyl Carbonate/LiPF6
TS6635	Dimethyl Carbonate/LiPF6
TS6636	Dimethyl Carbonate/LiPF6
TS6637	Dimethyl Carbonate/LiPF6
TS6638	Dimethyl Carbonate/LiPF6
TS6639	Dimethy Carbonate
TS6640	Propylene Carbonate
TS6641	Diethyl Carbonate
TS6642	Dimethyl Carbonate
TS6643	Etylene Carbonate
TS6644	Dimethyl Carbonate

TOTAL EMISSIONS REPORTED BY THE RESPONDENT FOR ALL INSIGNIFICANT TANKS: APPROXIMATELY 1,352 LBS/YR

G. The Respondent's investigation revealed that, due to an oversight, the current annual loading emissions limit for Total VOC reflected in the facility permit for EIQ Number 1-86 (1.88 tpy) does not include electrolyte loading. Each emission that was emitted to the atmosphere in excess of permitted limits is a violation of General Condition II of Air Permit Number 0840-00023-11, LAC 33:III.501.C.4, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a modified permit application on December 3, 2003, requesting an annual Total VOC emission limit of 1.91 tpy at EIQ Number 1-86 and requests interim authorization to operate at this increased limit.

H. Specific Condition Number 9 of Air Permit Number 0840-00023-11 requires the Respondent to calculate and record all HCl emissions monthly, as well as the total HCl emissions over the last 12 months. On November 20, 2003, the Respondent notified the Department that their investigation revealed that the facility had only recorded HCl emissions associated with the flare. The Respondent 600118

has since taken steps, including specific personnel training, to ensure compliance with this recordkeeping requirement. By failing to keep records of all HCl emissions at the facility, the Respondent is in violation of Specific Condition Number 9 of Air Permit Number 0840-00023-11, LAC 33:III.501.C.4, and Sections 2057(A)(2) of the Act.

I. The Respondent's investigation revealed that unpermitted/ unauthorized discharges of toxic air pollutants (TAPs) have occurred at the facility, but were not reported to the Department within 24 hours as required under LAC 33:III.5107.B.3, because the Respondent was reportedly not aware until recently that TAP emissions exceeded certain point source limits. The Respondent notified the Department of any such discharges in its November 20, 2003, correspondence, and henceforth any such discharges will be reported to the Department within 24 hours. By failing to notify the Department of these unauthorized discharges within 24 hours of the discharges, the Respondent is in violation of LAC 33:III.5107.B.3 and Section 2057(A)(2) of the Act.

VШ.

After the issuance of the CCONPP, the Respondent and the Department met on June 16, 2004, July 27, 2004, and August 25, 2004. The Respondent provided the Department with supplemental information regarding the issues in the CCONPP.

IX.

Additionally, the Respondent submitted a "Nine Factors" report addressing the issues in the CCONPP to the Department on June 21, 2004, and August 13, 2004. These letters are attached as Exhibits 2A and 2B, respectively, and are made a part hereof.

X.

Respondent denies that it committed any violations as alleged or otherwise, or is liable for any fine, forfeiture or penalty. Nonetheless, the Respondent, without making any admission of liability under state or federal statute or regulation, agrees to pay, and the Department agrees to accept, a cash payment in the amount set forth in Paragraph XVI, in full and complete settlement of noncompliance issues, through execution of this document, which relate to the alleged violations and tanks and/or emission sources set forth in the CCONPP, Enforcement Tracking No. AE-CN-03-

0338, issued on May 25, 2004. After an examination of the "Nine Factors" pursuant to La. R.S. 30:2025(E)(3), the Department has determined that the cash payment should be accepted as a full and complete settlement of the claims set forth herein.

Part II: The Risk Management Plan Issues

XI.

On September 17, 2003, a release of hydrogen chloride ("HCL") occurred at the facility. Internal investigations by the Respondent revealed that a pump failed at the facility, resulting in the release of benzene phosphorous dichloride ("BPD") into a containment area. Some BPD contacted water and formed HCL.

XII.

The Department investigated the release and alleged that the Respondent was not in full compliance with certain provisions of the Risk Management Program ("RMP"). Specifically, the Department alleged:

- A. The Respondent failed to correct deficiencies in equipment that were outside acceptable limits before further use or in a safe and timely manner when necessary means are taken to assure safe operation, in violation of 40 CFR 68.73(e), LAC 33:III.Chapter 59, and La. R.S. 2057(A)(2). Specifically, Pump PD-1059 was identified as needing to be replaced in an inspection conducted on July 2, 2003. No corrective action was implemented prior to pump failure.
- B. The Respondent failed to perform appropriate checks and inspections to ensure that equipment was installed properly and consistent with design specifications and manufacturer's instructions, in violation of 40 CFR 68.73(f)(2), LAC 33:III.Chapter 59, and

La. R.S. 2057(A)(2). The equipment installed on PD 1059 was not consistent with manufacturer's design specifications. The check performed by operations prior to placing the pump in service was not appropriate.

C. The Respondent failed to implement written procedures to manage changes to process equipment, in violation of 40 CFR 68.75(a), LAC 33:III.Chapter 59, and La. R.S. 2057(A)(2). Specifically, a piece of equipment was installed on PD 1059 that was not a replacement in kind. The equipment was installed without the Management of Change procedure being implemented.

XIII.

Respondent denies that it committed any violations as alleged or otherwise, or is liable for any fine, forfeiture or penalty. Nonetheless, the Respondent, without making any admission of liability under state or federal statute or regulation, agrees to pay, and the Department agrees to accept, a cash payment in the amount set forth in Paragraph XVI, in full and complete settlement of noncompliance issues, through execution of this document, claims and/or alleged violations set forth in Part II of this settlement. After an examination of the "Nine Factors" pursuant to La. R.S. 30:2025(E)(3), the Department has determined that the cash payment should be accepted as a full and complete settlement of the claims set forth herein.

XIV.

The Respondent specifically denies that any off-site impact resulted from the failure of PD 1059 or the subsequent release of BPD, HCL or any other substance on or about September 17, 2003. By entering into this Settlement, the Respondent is merely resolving claims and/or allegations made by the Department in the interest of avoiding litigation with the Department and the Respondent's

signature hereto is not, and shall not be construed as, an admission of liability by the Respondent or an agreement in any way with the claims and/or allegations made by the Department.

Part III: Terms and Conditions

XV.

Nothing in this Settlement Agreement shall be construed to limit, curtail, abrogate, or otherwise diminish in any way the interim limitations imposed upon the various emission sources at the site as ordered in the Compliance Order portion of the CCONPP.

XVI.

The Respondent agrees to pay, and the Department agrees to accept a cash payment of Fifty Six Thousand Six Hundred and 00/100 Dollars (\$56,600.00) in full and complete settlement of the matters resolved and settled as set forth in Parts I and II of this Settlement. Of this amount, Three Thousand Eight Hundred and 00/100 Dollars (\$3,800.00) shall be deemed to be reimbursement to the Department for enforcement and/or response costs incurred by the Department.

XVII.

Payment is to be made within 30 days from notice of the Secretary's signature. If payment is not received within that time, this Agreement is voidable at the option of the Department. Payment is to be made by check, payable to the Department of Environmental Quality and mailed or delivered to the attention of:

Darryl Serio
Office of Management and Finance
Financial Services Division, Department of Environmental Quality
P. O. Box 4303
Baton Rouge, Louisiana 70821-4303

The payment shall be accompanied by a completed settlement Payment Form (Exhibit C).

600118

XVIII.

This settlement is being made in the interest of settling the state's claims and avoiding for both parties the expense and effort involved in litigation or adjudicatory hearings associated with the issuance of a penalty. In agreeing to the compromise and settlement, the Department considered the factors for issuing civil penalties set forth in La. R.S. 30:2025(E) of the Act.

XIX.

The following is submitted by the Respondent as mitigating facts relating to the "Nine Factors" found in La. R.S. 30:2025(E)(3) with regard to air violations:

- 1. Ferro self-disclosed the issues in Part I of this Settlement to the Department;
- 2. The vast majority of these emission sources are "Insignificant Sources" within the meaning of LAC 33:III.501 and were inadvertently left out of prior permit applications;
- 3. Many of these emissions sources were routed to a flare or scrubber and had no uncontrolled emissions to the atmosphere;
- 5. Ferro has spent over \$200,000 to correct potential deficiencies, including the internal review that led to the self-disclosure;
- 6. Ferro submitted a permit application to insure that all sources were included in a permit application and thus a permit; and
- 7. Ferro has instituted multiple corrective measures, such as internal tracking of additions and deletions of sources, to insure that these alleged violations do not recur.

XX.

Respondent agrees that the Department may consider this Settlement Agreement, the CCONPP, the letters dated September 19, 2003, October 10, 2003, November 20, 2003, June 21, 2004, and August 13, 2004, for the sole purpose of determining compliance history in connection with any future enforcement or permitting action by the Department against the Respondent, and in

any such action the Respondent shall be estopped from objecting to the above-referenced documents being considered as proof of the violations alleged herein by the Department for the sole purpose of establishing Respondent's compliance history in any such permitting or enforcement action.

XXI.

This agreement shall be considered a final order of the secretary for all purposes, including, but not limited to, enforcement under La. R.S. 30:2025(G)(2) and the Respondent hereby waives any right to administrative or judicial review of the terms of this agreement, except such review as may be required for interpretation of this agreement in any action by the Department to enforce this agreement.

XXII.

The Respondent has caused a public notice advertisement to be placed in the official journal of the parish governing authority in East Baton Rouge Parish. The advertisement, in form, wording, and size approved by the Department, announced the availability of this settlement for public view and comment and the opportunity for a public hearing. Respondent has submitted a proof-of-publication affidavit to the Department and, as of the date this Settlement is executed on behalf of the Department, more than forty-five (45) days have elapsed since publication of the notice.

XXIII.

In consideration of the above, any and all claims for penalties are hereby compromised and settled in accordance with the terms of this Settlement.

XXIV.

The total amount of money expended by Respondent on cash payments to Department shall be considered a civil penalty for tax purposes, as required by La. R.S. 30:2050.7(E)(1).

XXV.

As to any third party, neither by entering into this Settlement nor by taking any action in accordance with it (including making the payments required by the Settlement), shall Respondent be deemed to have admitted any liability for any purpose or any responsibility for, or wrongdoing relating to, the matters addressed in this Settlement, or to have admitted any issues of law or fact related to or arising out of the matters addressed in the Settlement.

XXVI.

This Settlement Agreement is to be governed by Louisiana law and shall be effective upon the last date signed by any party to the Agreement. The last signatory shall promptly provide a signed copy to the other parties, by U.S. mail, after executing the Agreement.

XXVII.

The undersigned agents and representative of the Department and Respondent represent and warrant that they are duly authorized to execute this Settlement Agreement to legally bind the parties on whose behalf they have executed the Settlement Agreement.

	FERRO CORPORATION
	BY:
	NAME:
	TITLE:
THUS DONE AND SIGNED before me this	day of, 2005.
NOT	ARY PUBLIC, NUMBER, NAME
	STATE OF LOUISIANA
:	Mike D. McDaniel, Ph.D., Secretary
	Louisiana Dept. of Environmental Quality
	BY:
	Harold Leggett
	Assistant Secretary Office of Environmental Compliance
	Office of Environmental Compilance
THUS DONE AND SIGNED before me this	day of, 2005.
NOT	ARY PUBLIC, NUMBER, NAME
Approved Lawrel Legith	
Harold Leggett, Assistant Secretar	ry

STATE OF LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF ENVIRONMENTAL COMPLIANCE

IN THE MATTER OF

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FERRO CORPORATION EAST BATON ROUGE PARISH ALT ID NO. 0840-00023 ENFORCEMENT TRACKING NO.

AE-CN-03-0338

AGENCY INTEREST NO.

PROCEEDINGS UNDER THE LOUISIANA ENVIRONMENTAL QUALITY ACT, La. R.S. 30:2001, ET SEQ.

3387

CONSOLIDATED COMPLIANCE ORDER & NOTICE OF POTENTIAL PENALTY

The following CONSOLIDATED COMPLIANCE ORDER & NOTICE OF POTENTIAL PENALTY is issued to FERRO CORPORATION (RESPONDENT) by the Louisiana Department of Environmental Quality (the Department), under the authority granted by the Louisiana Environmental Quality Act (the Act), La. R.S. 30:2001, et seq., and particularly by La. R.S. 30:2025(C), 30:2050.2 and 30:2050.3(B).

FINDINGS OF FACT

Ī.

The Respondent owns and/or operates a chemical plant located at 111 West Irene Road in Zachary, East Baton Rouge Parish, Louisiana. The facility operates under Air Permit Number 0840-00023-11, issued on June 12, 2003.

EXHIBIT

In the context of reviewing its fugitive emission/leak detection and repair program (LDAR), the Respondent discovered improperly permitted and/or unpermitted emission sources existing at its facility. These findings were reported to the Department, in accordance with General Condition XI.B of the permit and LAC 33:I.Chapter 39, in correspondence dated September 19, 2003, and November 20, 2003, as well as during an October 6, 2003, meeting between Representatives of the Department's Office of Environmental Compliance and representatives of the Respondent. It was noted in the September 19, 2003, letter that the Respondent was undertaking a comprehensive investigation and review of its emission sources to confirm the information provided in the letter, such as the status of the tanks described therein, as well as to identify any additional emission sources which needed to be addressed. At the time of the September 19, 2003, letter, the Respondent stated that they had no information indicating that emissions from these sources had resulted in any off-site impact or any danger or adverse impact to the public health and safety or the environment.

Ш.

On or about October 10, 2003, the Respondent and its consultant submitted to the Department the emission calculations for the unpermitted sources disclosed to the Department in the September 19, 2003, letter. This submission was supplemented on November 20, 2003.

IV.

On December 3, 2003, the Respondent, through its consultant, submitted an application to amend its air permit to reflect identified permit deficiencies.

The Respondent has notified the Department that the production of the Glymes Unit will be limited to control the amount of product going to the flare, thus limiting HCl emissions. The prior Glymes Unit production rate was 12 MM lbs/yr. The proposed production rate is 10.4 MM lbs/yr. The Respondent submitted a permit modification application on December 3, 2003, addressing this change and requests interim authorization to operate the Glymes Unit with an enforceable HCl emission limit at EIQ Number 1-97 of 5.97 tpy.

In the air permit application submitted by the Respondent in May 2003, on-site laboratory emissions were included in Appendix A. The resulting Air Permit Number 0840-00023-11 issued on June 12, 2003, did not list these emissions on the insignificant activities list as requested. The Respondent then modified the permit application on December 3, 2003, to correct this issue, and requested interim authorization to emit up to five tpy of VOC from this emission source.

V.

On November 20, 2003, the Respondent notified the Department that some information provided and/or statements and certifications made in the past years to the Department may have been incorrect because various emission sources were omitted or incorrectly characterized. The Respondent investigated this matter and according to the Respondent, the 2002 reports to the Department were revised as needed.

VI.

On or about February 26, 2004, a file review of the Respondent's facility was conducted to determine the degree of Compliance with the Act and Air Quality Regulations. The following violations were noted during the course of the file review:

A. The Respondent's investigation revealed that emissions from various tanks that are routed to its Plant Flare (EIQ No. 1-93) are not permitted to be routed to EIQ No. 1-93 and the emissions associated with those tanks were not considered in the calculation of emissions from this source. The unpermitted tanks are listed in the table below:

UNPERMITTED TANKS VENTED TO SOURCE 1-93 (ENCLOSED FLARE)

TR701	TS487A	T\$487B	TP7057
TP730	TS478B	TP2130A	*T-1 Reflux
TR601	TP7050	TP2133A	*T-2 Reflux
TP480	*TR703	TP2133B	*T-3 Reflux
TP486	*TR702	TP500	TP501T
TS436A	TS6629		

*The Respondent reported that these tanks are not permitted to be routed to Emission Source 1-93, but have no emissions associated with them.

Each tank that was routed to this source but not permitted to do so and each unpermitted pollutant from each tank that was emitted from this source is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a permit modification application on December 3, 2003, listing all emission sources routed to EIQ Number 1-93, along with emission calculations for each source, and seeking increased emissions limits for certain pollutants. The Respondent requests interim authorization to operate the currently unpermitted emission sources routed to EIQ Number 1-93, within emission limits as requested in the permit modification application.

The Respondent's investigation revealed that several tanks (TS436E, B, TS437, TS478C, TS479, TS481, and TS484) that are permitted to be routed to Emission Source 1-93 were originally believed to have no associated emissions and were originally permitted as such. However, the Respondent reportedly discovered that these tanks contribute to the emissions to EIQ No. 1-93. Each unpermitted pollutant from each tank that was emitted from this source is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a permit modification application on December 3, 2003, listing all emission sources routed to EIQ Number 1-93, along with emission calculations for each source, and seeking increased emissions limits for certain pollutants. The Respondent requests interim authorization to operate these tanks routed to EIQ Number 1-93, within emission limits as requested in the permit modification application.

Additionally, the following permitted tanks are vented to EIQ Number 1-93 and contribute to the permitted emissions from this source:

TP415A	TR413B	TS554	TS704	TS553	TS6637	TR6601
TP417A	TR413C	TS574	TS711	TS1049	TS6638	TR6602
TP424	TS432A	TS575	TS714	TS1075	TS6639	TR6603
TP429	TS545	TS576	TS770	TP601	TS6640	TS6633
TP430	TS546	TS671	TS771	TS703	TS6641	TS6634
TP1023	TS552	TS672	TS6636	TS6643	TS6642	TS6635
TR413A						

C. The Respondent's investigation revealed that emissions from various unpermitted tanks that are routed to its BZPA Scrubber (EIQ Number 11-82), were not considered in the calculation of emissions from EIQ Number 11-82. The tanks are noted in the chart below:

TP1003	TP1086
TP1021	TP1087
TP1022A	TP1082
TP1024	TP1018
TP1043	TR1085
TP1044	TR1028

Each unpermitted pollutant from each tank that was emitted from this source is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a permit modification application on December 3, 2003, listing all emission sources routed to EIQ Number 11-82, along with emission calculations for each source, and is seeking increased emissions limits for certain pollutants. The Respondent requests interim authorization to operate the currently unpermitted emission sources noted below routed to EIQ Number 11-82, within emission limits as requested in the permit modification application.

Additionally, the following permitted tanks are vented to EIQ Number 11-82 and contribute to the permitted emissions from this source:

KO1041	TP1002	TP1041
TR1001	TP1004	TP1047
TR1010	TP1005	TS1051
TR1040	TP1011	TS1052
KO1051	TP1012	TS1052A
KO1004	TP1020	

- D. The Respondent's investigation revealed various tanks which are vented to the atmosphere and which are not identified as emission sources in the Respondent's permit (TP2181, TP7000A, TP7000B, TP7030, TP7035, TS209, TS477A, TS477B, TP400, TS2100, TS915A, TP1014, TP1017). Each emission of each unpermitted pollutant that was emitted to the atmosphere from these sources is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a permit modification application on December 3, 2003, listing all emission sources vented to the atmosphere along with emission calculations.
- The Respondent notified the Department that tanks TP900A, E. TP900B, TP901, TP908A, TP908B, TP909, TS902, TS903A, TS903B, and TS904 in the CCB Unit, which were previously permitted to vent to the plant flare (EIQ Number 1-93), are no longer connected to the plant flare. The Respondent reported that the tanks were disconnected from the plant flare sometime between January and September 2003. The tanks vented emissions to the atmosphere from the time that they were disconnected from the flare until the time that they were emptied and cleaned in December 2003. Each unpermitted pollutant that was emitted to the atmosphere from each source is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. For operational flexibility to allow these tanks to be utilized in the future, the Respondent submitted a permit modification application on December 3, 2003, to permit these tanks as individual storage tanks
- F. The Respondent's investigation identified various tanks which are not identified as permitted emission sources in the Respondent's air permit. The tanks are listed in the table below:

TANK NUMBER	DESCRIPTION/CONTENTS
TS556	Diglyme Storage Tank
TP1013	Peroxide Addition Pot
TP1031	Melt Tank
TP1027	Bleach Tank
TP491	Used Oil Tank
TS1004	Vacuum Pump Oil Stg. Tank
TP905	Carbon Black Oil
TS999	CCB Slop Oil Tank
TP603	TR 609 Receiver
TP607	Ethylene Carbonate Storage
TP608	H.P. Reactor O/H Receiver
TP610	Ethylene Carbonate Storage
TP452	Reflux Pot
TP482	Azeotrope Column Reflux Drum

	TP6605	EC/PC Blend Tank	
	TP6607	DEC Storage	
	TP6608	DME Dryer Tank	
	TP6609	THF Tank	
	TP6614	Mix Vessel	
	TR6612	Reactor	
	TS6613	Electolytes Tank	•
	TS6615	NO. 35 Storage	
	TS6616	NO. 35 Storage	
	TS6617	NO. 35 Storage	
	TS6618	NO. 35 Storage	
	TS6626	DMC Dryer	è
	TS6630	PC Storage	
	TS6631	DXL Storage	
	TS6632	DME Storage	
	TS2185A	Groundwater Treatment Tank	
	TS2185B	Groundwater Treatment Tank	
	TS512	Sodium Weigh Tank	
	TS522	Sodium Weigh Tank (New)	
	TS550	Sodium Storage Tank	
	TS587A	Elec. Glyme Storage	
	TS587B	Elec. Glyme Storage	
	TR7015	Flash Pot	
	TP725	Heating Oil Tank	
	TP302	West Make Tank	
	TP303	NPES Tank	
	TP304	Lime Slurry Tank	
	TP351	BHT Slurry Tank	
	TP352	Zn St Make Tank	
	TP352B	Stearate Adjustment Tank	
•	TS348	Large Part. Stearate Storage	
	TS350	Food Grade Stearates	•
	TS345	Storage Tank	
	TP725	Hot Oil Tank	
	TP354	Storage Tank	
	TP313	NP-10	
	TS211	CAST	
	•	Turbine Oil Tank	•
		Used Oil Tank	
		Polyglyme Filter	
		Sample Pot With Oily Sludge	

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Each emission of each unpermitted pollutant that was emitted to the atmosphere from each of these sources is a violation of LAC 33:III.501.C.1, LAC 33:III.501.C.2, and Sections 2057(A)(1) and 2057(A)(2) of the Act. These tanks may qualify for inclusion on the Respondent's "Insignificant Activities" list pursuant to LAC 33:III.501.B.5.A.2, 3, and 4. The Respondent submitted a permit modification application on December 3, 2003, updating its list of "Insignificant Tanks", along with emission calculations for each. The Respondent requests interim authorization to operate these emission sources noted in the chart below, which total proposed emission limits do not exceed five tpy.

Additionally, the Respondent operates the following tanks that are currently permitted to contribute emissions to the Respondent's "Insignificant Activities" list:

TANK NUMBER	DESCRIPTION/CONTENTS
TP301	Calcium Stearate/Water
TP312	Calcium Stearate/Water
TP360	ESBO
TP1071	Tripropylamine
TP1072	Tripropylamine
TP1025	25% NAOH
TP1026	15% NAOH
TR6601	Dimethyl Carbonate/LiPF6
TR6602	Dimethyl Carbonate/LiPF6
TR6603.	Dimethyl Carbonate/LiPF6
TS306	Stearic Acid
TS308	Stearic Acid
TS310	Stearic Acid
TS311	Nonyl Phenol Surfactant
TS312	Nonyl Phenol Surfactant
TS341	Calcium Stearate/Water
TS342	Calcium Stearate/Water
TS343	Calcium Stearate/Water
TS344	Calcium Stearate/Water
TS347A	Calcium Stearate/Water
TS347B	Calcium Stearate/Water
T\$353	Zinc Stearate/Water
TS551	Dry Flux Oil
TS555	Caloria H>T. Heating Oil
TS555A	Caloria H>T. Heating Oil
T\$557	Glycol Ethers
TS558	Flux Oil
TS559	Flux Oil/MEOH/Glycol Ethers
TS560	Glycol Ethers
TS561	Glycol Ethers

T\$562	Flux Oil/Glycol Ethers
TS563	Flux Oil/Glycol Ethers
TS564	Water/Glycol Ethers
TS566	Glycol Ethers
TS567	Glycol Ethers
TS568	Glycol Ethers
TS569	Glycol Ethers
TS570	Glycol Ethers
TS571	Tetraethylene Glycol
TS572	Flux Oil
TS577	Glycol Ethers
TS578	Glycol Ethers
TS582	Glycol Ethers
TS583	Glycol Ethers
ŢS584	Glycol Ethers
TS586	Glycol Ethers
TS710	Chlorinated Polybutenes
TS724	PTSA/Water
TS910A	CCB
TS910B	CCB
TS1055	Dirty Water
TS1061	Ethylene Glycol/Water
TS1063	Ethylene Glycol/Water
T\$1069TN	Tripropylamine
TS1069TS	Tripropylamine
TS2040	Diesel
TS2302	Diesel
TS6633	Dimethyl Carbonate/LiPF6
TS6634	Dimethyl Carbonate/LiPF6
TS6635	Dimethyl Carbonate/LiPF6
TS6636	Dimethyl Carbonate/LiPF6
TS6637	Dimethyl Carbonate/LiPF6
TS6638	Dimethyl Carbonate/LiPF6
TS6639	Dimethy Carbonate
TS6640	Propylene Carbonate
TS6641	Diethyl Carbonate
TS6642	Dimethyl Carbonate
TS6643	Etylene Carbonate
TS6644	Dimethyl Carbonate

TOTAL EMISSIONS REPORTED BY THE RESPONDENT FOR ALL INSIGNIFICANT TANKS: APPROXIMATELY 1,352 LBS/YR

- The Respondent's investigation revealed that, due to an oversight, the current annual loading emissions limit for Total VOC reflected in the facility permit for EIQ Number 1-86 (1.88 tpy) does not include Each emission that was emitted to the electrolyte loading. atmosphere in excess of permitted limits is a violation of General Condition of Air Permit Number 0840-00023-11, LAC 33:III.501.C.4, and Sections 2057(A)(1) and 2057(A)(2) of the Act. The Respondent submitted a modified permit application on December 3, 2003, requesting an annual Total VOC emission limit of 1.91 tpy at EIO Number 1-86 and requests interim authorization to operate at this increased limit.
- H. Specific Condition Number 9 of Air Permit Number 0840-00023-11 requires the Respondent to calculate and record all HCl emissions monthly, as well as the total HCl emissions over the last 12 months. On November 20, 2003, the Respondent notified the Department that their investigation revealed that the facility had only recorded HCl emissions associated with the flare. The Respondent has since taken steps, including specific personnel training, to ensure compliance with this recordkeeping requirement. By failing to keep records of all HCl emissions at the facility, the Respondent is in violation of Specific Condition Number 9 of Air Permit Number 0840-00023-11, LAC 33:III.501.C.4, and Sections 2057(A)(2) of the Act.
- I. The Respondent's investigation revealed that unpermitted/ unauthorized discharges of toxic air pollutants (TAPs) have occurred at the facility, but were not reported to the Department within 24 hours as required under LAC 33:III.5107.B.3, because the Respondent was reportedly not aware until recently that TAP emissions exceeded certain point source limits. The Respondent notified the Department of any such discharges in its November 20, 2003, correspondence, and henceforth any such discharges will be reported to the Department within 24 hours. By failing to notify the Department of these unauthorized discharges within 24 hours of the discharges, the Respondent is in violation of LAC 33:III.5107.B.3 and Section 2057(A)(2) of the Act.

COMPLIANCE ORDER

Based on the foregoing, the Respondent is hereby ordered:

I.

To submit to the Enforcement Division, within thirty (30) days after receipt of this COMPLIANCE ORDER, a written report that includes a detailed description of the

circumstances surrounding the cited violations and actions taken or to be taken to achieve compliance with the Order Portion of this COMPLIANCE ORDER. The report shall include the actual amount of unpermitted emissions that were released to the atmosphere as noted in Paragraphs VI.A through VI.G and VI.I of the Findings of Fact portion of this Order.

И.

To protect the air quality, the Respondent is required to comply with the following:

- A. If the Respondent chooses to emit any air contaminant in the state of Louisiana, the following interim limitations shall apply until a final decision is made by the Department on the Respondent's permit modification application, or unless otherwise notified in writing by the Department.
 - To operate the emission sources noted below routed to EIQ Number 1-93 with emission limits noted in the chart below.

TANKS VENTED TO SOURCE 1-93 (ENCLOSED FLARE)

PERMITTED STATUS
Permitted

TANK NUMBER	PERMITTED STATUS
TS1049	Permitted
TS1075	Permitted
TP480	Not Permitted
TP486	Not Permitted
TS436A	Not Permitted
TS436E	Not Permitted
TS437	Not Permitted
TS478B	Not Permitted
T\$478C	Not Permitted
TS479	Not Permitted
TS481	Not Permitted
TS484	Not Permitted
TS487A	Not Permitted
TS487B	Not Permitted
TP2130A	Not Permitted
TP2133A	Not Permitted

TS575	Permitted
TS576	Permitted
TS671	Permitted
TS672	Permitted
TS703	Permitted
TS704	Permitted
TS711	Permitted
TS714	Permitted
TS770	Permitted
TS771	Permitted
TR702	Not Permitted
T-1 Reflux	Not Permitted
T-3 Reflux	Not Permitted
TS437	Permitted
TS479	Permitted
TS484	Permitted

Not Permitted	
Not Permitted	
Permitted	
Not Permitted	
Not Permitted	
Not Permitted	
Not Permitted	
Not Permitted	
Permitted	
Permitted	
Permitted	

ELECTROLYTE STORAGE AND PROCESS VESSELS ROUTED TO SOURCE 1-93 (ENCLOSED FLARE)

VESSEL NUMBER	PERMITTED STATUS
TR6601	Permitted
TR6602	Permitted
TR6603	Permitted
TS6633	Permitted
TS6634	Permitted
TS6635	Permitted
TS6636	Permitted
TS6637	Permitted
TS6638	Permitted
TS6639	Permitted
TS6640	Permitted
TS6641	Permitted
TS6642	Permitted
TS6643	Permitted

EIQ NUMBER 1-93

		EMISSION RATE	
POLLUTANT	AVG. LB/HR	MAX LB/HR	ANNUAL TONS/YEAR
Particulate Matter	0.03	0.06	0.15
Sulfur Dioxide	<0.01	0.07	0.02
Nitrogen Oxides	0.31	0.54	1.34
Carbon Monoxide	1.67	2.96	7.29
Total VOC (Including Air Toxics)	1.57	3.16	6.89
Acetaldehyde	0.01	0.02	0.05
Dioxane (1,4-)	0.02	0.03	0.07
Benzene	<0.01	0.01	0.02
Glycol Ethers	0.04	0.08	0.18
Methanol	0.12	0.24	0.52
Methyl Tert Butyl Ether	<0.01	0.07	0.01
Hydrochloric Acid	<0.01	0.04	<0.01
Toluene	< 0.01	<0.01	<0.01

- 2. To operate the Glymes Unit flare, EIQ Number 1-97, with an enforceable HCl emissions limit of 5.97 tpy.
- To operate the emission sources noted below routed to the BZPA Scrubber (EIQ
 Number 11-82) with emission limits noted in the chart below.

	PERMITTED
TANK NUMBER	STATUS
KO1041	Permitted
TR1001	Permitted
TR1010	Permitted
TR1040	Permitted
KO1051	Permitted
KO1004	Permitted
TP1002	Permitted
TP1003	Not Permitted
TP1004	Permitted
TP1005	Permitted
TP1011	Permitted
TP1012	Permitted
TP1020	Permitted
TP1021	Not Permitted
TR1028	Not Permitted

TANK NUMBER	PERMITTED STATUS	
TP1022A	Not Permitted	
TP1024	Not Permitted	
TP1041	Permitted	
TP1043	Not Permitted	
TP1044	Not Permitted	
TP1047	Permitted	
TP1086	Not Permitted	
TP1087	Not Permitted	
TP1082	Not Permitted	
TS1051	Permitted	
TS1052	Permitted	
TS1052A	Permitted	
TP1018	Not Permitted	
TR1085	Not Permitted	

	EMISSION RATE			
POLLUTANT	ANNUAL AVG. LB/HR MAX. LB/HR TONS/YEAR			
Total VOC	0.10	0.10	0.44	
Benzene Phosphorous Dichloride	<0.01	<0.01	0.01	
Hydrochloric Acid	0.42	0.42	1.82	
Phosphorous Trichloride	<0.01	<0.01	0.02	
Toluene	<0.01	< 0.01	<0.01	
Benzene	0.08	0.08	0.36	
Benzene/Phenol/ Toluene/Xylene	0.00	0.00	0.00	

4. To operate the emission sources noted below vented to atmosphere with emission limits noted in the chart below.

			T T	ANNUAL
TANK NUMBER	POLLUTANT	AVG. LB/HR	MAX. LB/HR	TONS/YEAR
TP2181	VOC	<0.01	<0.01	<0.01
	Dioxane (1,4-)	<0.01	<0.01	<0.01
TP7000A	VOC	<0.01	<0.01	<0.01
TP7000B	VOC	<0.01	< 0.01	<0.01
TP7030	VOC	< 0.01	<0.01	<0.01
<u></u>	Methanol	<0.01	<0.01	<0.01
TP7035	VOC	Neg.	Neg.	Neg.
TS209	VOC	0.01	0.01	0.03
	Methanol	0.01	0.01	0.03
TS477A	VOC	<0.01	<0.01	<0.01
TS477B	VOC	<0.01	<0.01	<0.01
TP1014	HCI	<0.01	< 0.01	<0.01
TP1017	HC1	<0.01	<0.01	0.02
TP400	H2SO4	<0.01	<0.01	<0.01
TS2100	H2SO4	<0.01	<0.01	<0.01
TP900A	VOC	<0.01	<0.01	<0.01
	Glycol Ether	<0.01	<0.01	<0.01
TP900B	VOC	<0.01	<0.01	<0.01
	Glycol Ether	<0.01	<0.01	<0.01
TP901	VOC	<0.01	<0.01	<0.01
	Glycol Ether	<0.01	<0.01	<0.01
TP908A	VOC	0.02	0.02	0.09
_	Toluene	0.01	0.01	0.03
TP908B	VOC	0.02	0.02	0.09
	Toluene	0.01	0.01	0.03
TP909	VOC	<0.01	<0.01	<0.01
TS902	VOC	0.02	0.02	0.11
	Toluene	0.01	0.01	0.04

TS903A	VOC	0.03	0.03	0.15
	Toluene	0.01	0.01	0.05
TS903B	VOC	0.03	0.03	0.15
	Toluene	0.01	0.01	0.05
TS904	voc	0.02	0.02	0.11
	Toluene	0.01	0.01	0.04
TS915A	VOC	0.06	0.06	0.26
	Toluene	0.02	0.02	0.04

5. To operate with on-site laboratory emissions along with emissions from the sources noted below as part of the Respondent's "Insignificant Activities" list pursuant to LAC 33:III.501.B.5.A.2, 3, and 4 with a total emission limit from all sources not to exceed 5 tpy.

TANK NUMBER	DESCRIPTION/ CONTENTS	PERMITTED STATUS
TP301	Calcium Stearate/Water	Permitted
TP312	Calcium Stearate	Permitted
TP360	ESBO	Permitted
TP1071	Tripropylamine	Permitted
TP1072	Tripropylamine	Permitted
TP1025	25% NAOH	Permitted
TP1026	15% NAOH	Permitted
TR6601	Dimethyl Carbonate/LiPF6	Permitted
_TR6602	Dimethyl Carbonate/LiPH6	Permitted
TR6603	Dimethyl Carbonate/LiPF6	Permitted
TS306	Stearic Acid	Permitted
TS308	Stearic Acid	Permitted
TS310	Stearic Acid	Permitted
TS311	Nonyl Phenol Surfactant	Permitted
TS312	Nonyl Phenol Surfactant	Permitted
TS341	Calcium Stearate/Water	Permitted
TS342	Calcium Stearate/Water	Permitted
TS343	Calcium Stearate/Water	Permitted
TS344	Calcium Stearate/Water	Permitted
TS347A	Calcium Stearate/Water	Permitted
TS347B	Calcium Stearate/Water	Permitted
TS353	Zinc Stearate/Water	Permitted
TS551	Dry Flux Oil	Permitted
TS555	Caloria H>T.Heating Oil	Permitted
TS555A	Caloria H>T.Heating Oil	Permitted
TS556	Diglyme Storage Tank	Unpermitted
TS557	Glycol Ethers	Permitted
TS558	Flux Oil	Permitted
T\$559	Flux Oil/MEOH/Glycol Ethers	Permitted
TS560	Glycol Ethers	Permitted
TS561	Glycol Ethers	Permitted

TS562	Flux Oil/Glycol Ethers	Permitted
TS563	Flux Oil/Glycol Ethers	Permitted
TS564	Water/Glycol Ethers	Permitted
TS566	Glycol Ethers	Permitted
TS567	Glycol Ethers	Permitted
TS568	Glycol Ethers	Permitted
TS569	Glycol Ethers	Permitted
TS570	Glycol Ethers	Permitted
TS571	Tetraethylene Glycol	Permitted
T\$572	Flux Oil	Permitted
TS577	Glycol Ethers	Permitted
TS578	Glycol Ethers	Permitted
TS582	Glycol Ethers	Permitted
TS583	Glycol Ethers	Permitted
TS584	Glycol Ethers	Permitted
TS586	Glycol Ethers	Permitted
TS710	Chlorinated Polybutenes	Permitted
TS724	PTSA/Water	Permitted
TS910A	CCB	Permitted
TS910B	CCB	Permitted
TS1055	Dirty Water	Permitted
TS1061	Ethyene Glycol/Water	Permitted
TS1063	Ethyene Glycol/Water	Permitted
TSi069TN	Tripropylamine	Permitted
TS1069TS	Tripropylamine	Permitted
TS2040	Diesel	Permitted
TS2302	Diesel	Permitted
TS6633	Dimethyl Carbonate/LiPF6	Permitted
TS6634	Dimethyl Carbonate/LiPF6	Permitted
TS6635	Dimethyl Carbonate/LiPF6	Permitted
TS6636	Dimethyl Carbonate/LiPF6	Permitted
TS6637	Dimethyl Carbonate/LiPF6	Permitted
TS6638	Dimethyl Carbonate/LiPF6	Permitted
TS6639	Dimethyl Carbonate	Permitted
TS6640	Propylene Carbonate	Permitted
TS6641	Diethyl Carbonate	Permitted
TS6642	Dimethyl Carbonate	Permitted
TS6643	Ethylene Carbonate	Permitted
TS6644	Dimethyl Carbonate	Permitted
TP1013	Peroxide Addition Pot	Unpermitted
TP1031	Melt Tank	Unpermitted
TP1027	Bleach Tank	Unpermitted
TP491	Used Oil Tank	Unpermitted
TS1004	Vacuum Pump Oil Stg. Tank	Unpermitted
TP905	Carbon Black Oil	Unpermitted
TS999	CCB Slop Oil Tank	Unpermitted
TP603	TR 609 Receiver	Unpermitted
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TP607	Ethylene Carbonate Storage	Unpermitted
TP608	H.P. Reactor O/H Receiver	Unpermitted
TP610	Ethylene Carbonate Storage	Unpermitted
TP452	Reflux Pot	Unpermitted
TP482	Azeotrope Column Reflux Drum	Unpermitted
TP6605	EC/PC Blend Tank	Unpermitted
TP6607	DEC Storage	Unpermitted
TP6608	DME Dryer Tank	Unpermitted
TP6609	THF Tank	Unpermitted
TP6614	Mix Vessel	Unpermitted
TR6612	Reactor	Unpermitted
TS6613	Electrolytes Tank	Unpermitted
TS6615	No. 35 Storage	Unpermitted
TS6616	No. 35 Storage	Unpermitted
TS6617	No. 35 Storage	Unpermitted
TS6618	No. 35 Storage	Unpermitted
TS6626	DMC Dryer	Unpermitted
· TS6630	PC Storage	Unpermitted
TS6631	DXL Storage	Unpermitted
TS6632	DME Storage	Unpermitted
TS2185A	Groundwater Treatment Tank	Unpermitted
TS2185B	Groundwater Treatment Tank	Unpermitted
TS512	Sodium Weigh Tank	Unpermitted
TS522	Sodium Weigh Tank (New)	Unpermitted
TS550	Sodium Storage Tank	Unpermitted
TS587A	Elec. Glyme Storage	Unpermitted
TS587B	Elec. Glyme Storage	Unpermitted
TR7015	Flash Pot	Unpermitted
TP725	Heating Oil Tank	Unpermitted
TP302	West Make Tank	Unpermitted
TP303	NPES Tank	Unpermitted
TP304	Lime Slurry Tank	Unpermitted
TP351	BHT Slurry Tank	Unpermitted
TP352	Zn St Make Tank	Unpermitted
TP352B	Stearate Adjustment Tank	Unpermitted
TS348	Large Part. Stearate Storage	Unpermitted
TS350	Food Grade Stearates	Unpermitted
TS345	Storage Tank	Unpermitted
TP725	Hot Oil Tank	Unpermitted
TP354	Storage Tank	Unpermitted
TP313	NP-10	Unpermitted
TS211	CAST	Unpermitted
	Turbine Oil Tank	Unpermitted
<u> </u>	Used Oil Tank	Unpermitted
	Polyglyme Filter	Unpermitted
	Sample Pot With Oily Sludge	Unpermitted

- 6. To operate EIQ Number 1-86 (Fugitive Loading Emissions) with an annual Total VOC emission limit of 1.91 tpy.
- 7. To operate the emission sources noted below with air toxics emission limits noted in the chart below.

		DECLERATED I B (III
EMISSION POINT	POLLUTANT	REQUESTED LIMIT (tpy)
1-93	1,4-Dixoxane	0.07
TP2181	1,4-Dixoxane	<0.01
1-93	Acetaldehyde	0.05
11-82		+
	Benzene	0.36
1-93	Glycol Ethers	0.18
TP900A	Glycol Ethers	<0.01
TP900B	Glycol Ethers	<0.01
TP901	Glycol Ethers	<0.01
11-82	Toluene	<0.01
TP908A	Toluene	0.03
TP908B	Toluene	0.03
TS903A	Toluene	0.05
TS903B	Toluene	0.05
TS902	Toluene	0.04
TS904	Toluene	0.04
TS915A	Toluene	0.04
11-82	Hydrochloric Acid	1.82
TP1014	Hydrochloric Acid	<0.01
TP1017	Hydrochloric Acid	0.02
TP400	Sulfuric Acid	<0.01
TS2100	Sulfuric Acid	<0.01
TOTAL	1,4 Dioxane	3.03
TOTAL	Acetaldehyde	0.27
TOTAL	Acrylic Acid	0.02
TOTAL	Benzene	0.45
	Benzene/Phenol/	
TOTAL	Tohiene/ Xylene	0.83
TOTAL	Ethyl Chloride	0.14
TOTAL	Ethylene Glycol	0.43
TOTAL	Formaldehyde	0.51
TOTAL	Glycol Ethers	5.52
TOTAL	Methanol	1.53
TOTAL	Methyl Chloride	0.53
	Methyl Tert Butyl	
TOTAL	Ether	0.01
TOTAL	Toluene	1.28
TOTAL	. Hydrochloric Acid	8.37

TOTAL	Sulfuric Acid	<0.02
TOTAL	BPD	0.01
TOTAL	VOC Air Toxics	14.55
TOTAL	Non-VOC Air Toxics	8.39
TOTAL	Air Toxics	22.94

B. If the Respondent does not choose to emit any air contaminant in the state of Louisiana, the Respondent shall, within thirty (30) days after receipt of this COMPLIANCE ORDER, provide written documentation to the Department that no activities exist at the Respondent's facility resulting in any unauthorized discharges to the air.

III.

To notify the Department of any unpermitted or unauthorized discharges of toxic air pollutants which occur at the Respondent's facility within 24 hours, pursuant to LAC 33:III.5107.B.3.

ΓV.

Except as indicated in Paragraph II of this Order, to comply with all terms, conditions, and emission limitations set forth in Air Permit Number 0840-000023-11.

THE RESPONDENT SHALL FURTHER BE ON NOTICE THAT:

I.

The Respondent has a right to an adjudicatory hearing on a disputed issue of material fact or of law arising from this COMPLIANCE ORDER. This right may be exercised by filing a written request with the Secretary no later than thirty (30) days after receipt of this COMPLIANCE ORDER.

The request for an adjudicatory hearing shall specify the provisions of the COMPLIANCE ORDER on which the hearing is requested and shall briefly describe the basis for the request. This request should reference the Enforcement Tracking Number and Agency Interest Number, which are located in the upper right-hand corner of the first page of this document and should be directed to the following:

Department of Environmental Quality
Office of the Secretary
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302
Attn: Hearings Clerk, Legal Division

Re: Enforcement Tracking No. AE-CN-03-0338 Agency Interest No. 3387

III.

Upon the Respondent's timely filing a request for a hearing, a hearing on the disputed issue of material fact or of law regarding this COMPLIANCE ORDER may be scheduled by the Secretary of the Department. The hearing shall be governed by the Act, the Administrative Procedure Act (La. R.S. 49:950, et seq.), and the Department's Rules of Procedure. The Department may amend or supplement this COMPLIANCE ORDER prior to the hearing, after providing sufficient notice and an opportunity for the preparation of a defense for the hearing.

IV.

This COMPLIANCE ORDER shall become a final enforcement action unless the request for hearing is timely filed. Failure to timely request a hearing constitutes a waiver of the Respondent's right to a hearing on a disputed issue of material fact or of law under Section 2050.4 of the Act for the violation(s) described herein.

The Respondent's failure to request a hearing or to file an appeal or the Respondent's withdrawal of a request for hearing on this COMPLIANCE ORDER shall not preclude the Respondent from contesting the findings of facts in any subsequent penalty action addressing the same violation(s), although the Respondent is estopped from objecting to this COMPLIANCE ORDER becoming a permanent part of its compliance history.

VI.

Civil penalties of not more than twenty-seven thousand five hundred dollars (\$27,500) for each day of violation for the violation(s) described herein may be assessed. The Respondent's failure or refusal to comply with this COMPLIANCE ORDER and the provisions herein will subject the Respondent to possible enforcement procedures under La. R.S. 30:2025, which could result in the assessment of a civil penalty in an amount of not more than fifty thousand dollars (\$50,000) for each day of continued violation or noncompliance.

VII.

For each violation described herein, the Department reserves the right to seek civil penalties in any manner allowed by law, and nothing herein shall be construed to preclude the right to seek such penalties.

NOTICE OF POTENTIAL PENALTY

I.

Pursuant to La. R.S. 30:2050.3(B), you are hereby notified that the issuance of a penalty assessment is being considered for the violation(s) described herein. Written comments may be filed regarding the violation(s) and the contemplated penalty. If you elect to submit comments, it is requested that they be submitted within ten (10) days of receipt of this notice.

Prior to the issuance of additional appropriate enforcement action(s), you may request a meeting with the Department to present any mitigating circumstances concerning the violation(s). If you would like to have such a meeting, please contact Toby LeMaire at (225) 219-3751 within ten (10) days of receipt of this NOTICE OF POTENTIAL PENALTY.

III.

The Department is required by La. R.S. 30:2025(E)(3)(a) to consider the gross revenues of the Respondent and the monetary benefits of noncompliance to determine whether a penalty will be assessed and the amount of such penalty. Please forward the Respondent's most current annual gross revenue statement along with a statement of the monetary benefits of noncompliance for the cited violation(s) to the above named contact person within ten (10) days of receipt of this NOTICE OF POTENTIAL PENALTY. Include with your statement of monetary benefits the method(s) you utilized to arrive at the sum. If you assert that no monetary benefits have been gained, you are to fully justify that statement.

IV.

This CONSOLIDATED COMPLIANCE ORDER & NOTICE OF POTENTIAL PENALTY is effective upon receipt.

Baton Rouge, Louisiana, this 26 day of

2004.

Assistant Secretary

Office of Environmental Compliance

Copies of a request for a hearing and/or related correspondence should be sent to:

Louisiana Department of Environmental Quality Office of Environmental Compliance Enforcement Division P.O. Box 4312 Baton Rouge, LA 70821-4312 Attention: David R. Simmons

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Breazeale, Sachse & Wilson, L.L.P.

GORNON A. Pocin JAMES E. TOURS, IR. PAULM, HEREIT, JR. VAN R. MAMIALL, JR." CLAUIX F. REYNAUD, JR. MUNIN J. FONTER, III DAVID R. CASSIDY" Robert T. Bowsier CURNTINE LINEY DAVID R. KELLY ROBERT L. ATKINSON DAVID M. CHARLTON! DOUGLAS K. WILLIAMS STERIEN F. CHRYARELLI EMILE C. ROLES, III REMARD D. LEBOWITZ MRTIAGE R. HUBBELL JOHN W. BARTON, IR. JUDE C. BURSAVICE JOSEMI E. FREND PETER J. BUTLER, JR. STEVEN B. LOEB FRANK S. CIMIC, IST TRENTON [. OUBRE

TERRY L. STOWALL, IR. RICHARD G. PASSIER JEANNE C. COMEAUX CULLEN J. DUPLY STEITHEN R. WHALEN' LEO C. HAMILTON LOS A. LEITZELAR TAMES R. AUSTIN JOSEPH P. TITONE MICHAEL C. LUGUET W. BRITT MAYON' R. CHARLES ELLIS! SCOTT N. HENNGENS MELISSA M. STHIRLEY LANCE J. KINCHEN' TAIL FOTO JOELL M. KELLER KIM G. MAYTINLL A. TODD CARUSO BEN B. HU TIKMAS R. TEMPLE, JR. JOHN T. ANDRISHOR JEFFREY C. VALKEIAN PETER A. KOPFINGER

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June 21, 2004

11, PAYNE BREAZEALE (1886-1990) VICTOR A. SACHSE, JR. (1903-1979) MAURICEJ, WILSON (1919-1990) FROMNN P. BREAZEALE, JR. (1920-1979)

RAIPH T. RAIMAN YVINNI, I. RIED MANVILLE F. BOINN MITTAGE P. FRUXE' WEND B. LOUP JOHN M. MAINHAM, III-VAN R. MAYHALL, III LAUREN S. COENEN BRIENT P. FREDERIK ANTERNY P. PALERMO LERVETTE R. JONES KAYE M. CARALLERY SARAH NEW J. MARK ROBINSON R. BENN VINCENT, JR. JOHN B. KING: WILLIAM C. WALLACE CHARLES G. BLAZE, JR.

- IN WITH THE POST AND PLANTING AND ADMINISTRATION APPLICATION
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SPECIAL COUNSEL
PETER J. BUTLER
L. LINTON MORGAN
BERNARD E. BOUDREAUX, JR.

OF COUNSEL VILTOR A. SAGISE, III

FOR SETTLEMENT DISCUSSIONS ONLY

Mr. Harold Leggett
Assistant Secretary
Office of Environmental Compliance
Louisiana Department of Environmental Quality
P. O. Box 4312
Baton Rouge, Louisiana 70821-4312

Re:

Self-Disclosure by Ferro Corporation, Zachary, Louisiana Consolidated Compliance Order and Notice of Potential Penalty Enforcement Tracking Number AE-CN-03-0338; Al No. 3387

Dear Mr. Leggett:

On behalf of Ferro Corporation, I wish to extend my thanks and appreciation to the staff of the Enforcement and Legal Divisions for meeting with us on June 16, 2004. We believe that our self-disclosure of the facts and circumstances of this case presents an opportunity to resolve this matter in an amicable fashion.

In furtherance of the cooperative manner displayed during the meeting by Peggy Hatch, Jane Lacour, Toby Lemaire, and Andrea Jones, this letter will formally present many of the facts and conclusions we discussed during our meeting. Specifically, we will present our conclusions regarding the categorizations of the violations noted in the Consolidated Compliance Order and Notice of Potential Penalty ("CCONPP"); the multiple measures taken by Ferro Corporation ("Ferro") to mitigate these violations and ensure that they will never be repeated; our analysis of similar settlements; and our offer to resolve this matter.

EXHIBIT

2A

FOR SETTLEMENT DISCUSSIONS ONLY

As you are aware, the Louisiana Department of Environmental Quality ("LDEQ") issued a CCONPP to the Ferro facility on May 26, 2004. The CCONPP, which relates only to air quality issues, is based wholly on activities that were voluntarily self-disclosed to LDEQ.

Ferro has always operated under the provisions of an air quality permit. A consolidated permit, No. 1955, was issued on April 30, 1987 to replace various individual operating permits. In 1991, Permit No. 0840-00023-01 was issued. Since that time, numerous permit modifications have been applied for and granted. Ferro currently operates as a minor source of air emissions pursuant to Permit No. 0840-00023-11, issued June 12, 2003.

On September 19, 2003, Ferro voluntarily self-disclosed to the LDEQ that various tanks at the facility were either improperly permitted or not permitted. Ferro supplemented and amended the self-disclosures on October 10, 2003 and November 20, 2003. On December 3, 2003, Ferro submitted a Permit Modification Application to include all of the emission sources at the facility. Additionally, Ferro requested on September 19, 2003 that it be granted interim authorization to operate the emission sources until such time as a decision was made on the Application. A draft CCONPP was submitted by Ferro to LDEQ on December 24, 2003.

On May 26, 2004, the CCONPP was issued, providing Ferro with interim authorization to operate the various emission sources at the facility. With the submission of the Application, and the issuance of the CCONPP, Ferro is in full compliance with the regulatory requirements. In essence, the CCONPP operates as a portion of Ferro's air permit until the application can be acted upon.

I. "Nine Factors" Review of the CCONPP

In deciding whether to issue a penalty, the LDEQ must review and consider the "Nine Factors" set forth in La. R.S. 30:2025(E)(3)(a). LDEQ is requested to consider the following:

- 1. Ferro voluntarily self-disclosed these facts to the LDEQ. At no time was there ever an intent to circumvent the regulations or hide these sources or violations from the LDEQ.
- 2. Ferro has instituted institutional and process controls to ensure that these types of violations are never repeated.
- 3. Ferro is located in an industrialized area with few nearby residences. The emissions from these sources are very low. There is no measurable risk of harm to public health or the environment as a result of these violations.
- 4. Ferro has spent over \$200,000 to come into compliance, which includes the internal review that led to the self-disclosure, the self-disclosures themselves and the supplements and

FOR SETTLEMENT DISCUSSIONS ONLY

amendments thereto, the compilation of the tank compliance database, and the December, 2003 permit modification request.

- 5. With the submission of the December, 2003 Permit Modification Application, Ferro actually reduces the amount of Volatile Organic Compounds ("VOC") and Hydrogen Chloride ("HCL") emitted from all sources. Currently, Ferro operates pursuant to Permit No. 0840-00023-11, issued June 12, 2003. Permitted VOC emissions are 42.01 tons per year ("TPY") and permitted HCL emissions are 8.53 TPY. The Application requests VOC limits of 39.42 TPY and HCL limits of 8.4 TPY. Thus, despite the fact that Ferro is adding emission sources, actual emissions are reduced.
- 6. Many of the tanks not previously mentioned in a permit were at all times routed to permitted control devices (22 tanks routed to the flare permitted as EIQ No. 1-93 and 12 tanks routed to the BZPA scrubber permitted as EIQ No. 11-82). Further, many of the tanks are insignificant sources with very low emissions (55 tanks). Thus, the tanks in question were always subject to appropriate controls or were never required to have them.
- 7. The addition of the emissions from these tanks will not affect Ferro's status as a minor source of air emissions.
- 8. These violation(s) are mainly in the nature of "paperwork"-violations. Had Ferro included the tanks in prior permit applications, LDEQ would have included them without reservation in the permits that were in fact issued. For example, the "Insignificant Activities" regulation (LAC 33:III.501.A.5) generally requires simply that the insignificant sources be listed in the application.

The discussion which follows assumes that each section of the CCONPP is treated as a single penalty event. LDEQ has a great deal of discretion in determining what constitutes a penalty event and we respectfully request that LDEQ exercise that discretion in favor of treating these events as single penalty events. Ferro reserves the right to reevaluate the categorizations below should LDEQ exercise its discretion to treat these violations as anything other than a single penalty event. Ferro's voluntary self-disclosure, its institution of controls sufficient to insure that these violations never occur again, and the lack of any measurable environmental harm should induce LDEQ to consider each section of the CCONPP as a single penalty event.

With these considerations in mind, each of the Nine Factors will be reviewed as to each violation alleged.

¹ LDEQ increased VOC limits by 7.52 TPY in approving the June 12, 2003 modification.

FOR SETTLEMENT DISCUSSIONS ONLY

A. Violation-Specific Factors:

1. Risk of Harm and Nature and Gravity

Section 30:2025(E)(3)(e)(vi) and (ii) require a review of the "degree of risk to human health or property caused by the violation" and the "nature and gravity of the violation."

a. Risk of Harm

The implementing regulations for the Nine Factors defines a "minor" risk of harm as a violation that does not directly present actual harm or substantial risk of harm to the environment or public health. A violation that poses no measurable detrimental effect to the environment and those that are administrative in nature may be considered minor. LAC 33:I.705.A.1.c. A "moderate" risk of harm is one that has the potential for measurable detrimental impact on the environment or public health. A violation "characterized by occasional occurrence and/or pollutant concentration that may be expected to have a detrimental impact under certain conditions" may be considered moderate. LAC 33:I.705.A.1.b.

In assessing the degree of risk, LDEQ should consider the following:

- 1. Ferro is a minor source that operates in a predominantly industrial area. There are few, if any, individual residences or single-family dwellings in the immediate area.
- Permitted emission rates for VOCs (as of June 12, 2003, No. 0840-00023-11) are 42.01 TPY, which was a 7.52 TPY increase from the December 11, 2002 permit, No. 0840-00023-10. LDEQ, by granting that increase, allowed and permitted VOC emission increases that are greater than the sum of all the sources not previously permitted or included in permit calculations.²
- 3. Total VOC emissions to be permitted with all of the sources included, as set forth in the Application, are 39.42 TPY, a 2.59 TPY decrease from the June 12, 2003 total VOC permitted emission rate. With the voluntary decrease in the HCL emissions from the Glymes Unit Flare (EIQ No. 1-97), actual HCL emissions will be reduced from 8.53 TPY to 8.4 TPY,

² Summing the VOC emissions from all of the sources not previously mentioned in a permit yields a total of approximately 2.2 TPY VOC emissions. Source: December 3, 2003 Application. Includes 23 tanks to be specifically listed in the permit (1.14 TPY); 22 tanks and 6 tanks not previously considered in 1-93 calculations (.084 TPY [post-flare]); 55 "Insignificant Activities" tanks (approx. .5 TPY); and all tanks routed to scrubber, EIQ No. 11-82 (.44 TPY).

FOR SETTLEMENT DISCUSSIONS ONLY

- a .13 TPY decrease. Despite the inclusion of all sources in a permit, thus rectifying their prior omission, actual emissions are lower.
- 4. LDEQ regulations exempt certain sources from permitting based on size, emission rate, or type of pollutant. Generally, the emission rate exemption is five tons per year. LAC 33:III.501.A.5.A. LDEQ would not allow such an exemption-by-regulation if there was a risk of harm associated with that level of emissions. The increase from all sources is less than five tons per year. No single tank at Ferro that is included in the CCONPP has an emission rate even remotely approaching five tons per year.

b. Nature and Gravity

The implementing regulations for the Nine Factors note that a minor violation is one in which there is "some deviation from the intent of the requirement." It further defines the minor nature and gravity component as one in which the respondent "deviates somewhat from the requirements of the statutes, regulations, or permit; however, substantial implementation of the requirement occurred." LAC 33:I.705.A.2.c. A moderate violation is one that substantially negates the intent of the requirement. The respondent deviates from the requirements of the regulations, but some implementation of the requirements occurs. LAC 33:I.705A.2.b.

Generally, Ferro is cited for violations of La. R.S. 30:2057(A)(1) and (2), which, in essence, state that no person shall discharge air contaminants in violation of the regulations or a permit, or violate LDEQ's rules and regulations. Ferro is also charged with violating LAC 33:III.501.C.1 and 2. Section 501.C.1 requires the submission of a "timely and complete permit application." Section 501.C.2 prohibits modifications that result in an increase in emissions of air contaminants until a permit application is approved and a permit issued.

In assessing the nature and gravity, LDEQ should consider the following:

- 1. Ferro has always operated under the terms of a permit as required by the statute and regulations.
- 2. Ferro has always submitted permit applications as required by the regulations. In fact, since the issuance of Permit No. 0840-00023-01 on April 4, 1991, Ferro has submitted twelve permit modification requests for various projects at the facility.
- 3. Ferro has met the intent of the cited statutes and regulations in that permit applications were submitted and permits obtained.

Mr. Harold Leggett
June 21, 2004
Page 6
FOR SETTLEMENT DISCUSSIONS ONLY

CCONPP Sections VI.A:

Emissions from unpermitted tanks were not included in the emission calculations for Ferro's plant flare (EIQ No. 1-93).

Risk of Harm:

Each of the 22 tanks noted in Section VI.A were, at all times, routed to Ferro's control flare, EIQ No. 1-93, which exhibits a 98% control efficiency. The 22 tanks were simply not noted in a permit application as being routed to that control device. The emissions from these 22 tanks, prior to routing to the flare, are only 2.8 TPY VOC. When the control efficiency is applied to these emissions, the actual emissions, post-flare, amount to only .056 TPY, or 112 pounds per year. Source: Dec. 2003 Permit Application, Section 3.0, Tab 1-93.

Even with this increase in emissions, the permitted emission limitation for EIQ No. 1-93 was never exceeded. Further, it should be pointed out that the CCONPP establishes an annual emission rate of 6.89 TPY VOC for EIQ No.1-93. CCONPP, Compliance Order, Section II, at p. 13. This is a decrease of 2.32 TPY VOC from the current permitted emission rate of 9.21 TPY VOC.

The violation at issue is a failure to account for these emissions in the overall total for a single permitted source. Clearly, there is no actual or substantial risk of harm associated with the failure to account for these tanks in a permit. Adding 112 pounds per year of VOC emissions from EIQ No. 1-93 presents no risk or a slight risk of harm that has no measurable detrimental impact.

Nature and Gravity:

The calculations for EIQ No. 1-93 did not include 22 tanks. However, it did include fortynine (49) other tanks. Thus, the intent of the requirement was met (i.e., applications were submitted and underlying calculations included) and substantial implementation of the requirement did occur.

Conclusion:

For settlement purposes only, the violation cited in Section VI.A could be viewed as minor-moderate and the violation cited in VI.B as minor-minor. 4

CCONPP Sections VI.B:

Emissions from permitted tanks were not included in the emission calculations for Ferro's plant flare (EIO No. 1-93).

³ The VOC emissions from the 22 sources listed CCONPP Section VI.A were added, then the 98% control efficiency was factored in.

⁴ The Risk of Harm categorization will precede the Nature and Gravity categorization.

Mr. Harold Leggett
June 21, 2004
Page 7
FOR SETTLEMENT DISCUSSIONS ONLY

Risk of Harm:

Ferro believed that these six tanks had no emissions and permitted them as such. Each of the 6 tanks noted in Section VI.B were also, at all times, routed to Ferro's control flare, EIQ No. 1-93. The emissions from these 6 tanks, prior to routing to the flare, are only 1.4 TPY VOC. When the control efficiency is applied to these emissions, the actual emissions, post-flare, amount to only .028 TPY, or 55 pounds per year. Source: Dec. 2003 Permit Application, Section 3.0, Tab 1-93. Adding 55 pounds per year of VOC emissions from EIQ No. 1-93 presents no risk or a slight risk of harm that has no measurable detrimental impact. As with the violation noted in Section VI.A, the permitted emission limitation for EIQ No. 1-93 was never exceeded.

Nature and Gravity:

The 6 tanks were properly permitted, listed in permit applications, and routed at all times to the flare, EIQ No. 1-93. However, Ferro believed that they did not have any emissions associated with them. Thus, substantial implementation did occur.

Conclusion:

For settlement purposes only, the violation cited in VI.B as minor-minor.

CCONPP Section VI.C:

Various emissions from tanks were not included in the emission calculations for Ferro's BZPA scrubber (EIQ No. 11-82).

Risk of Harm:

The BZPA Scrubber (EIQ No. 11-82) received emissions from 12 tanks which were not considered in the emission calculations for the scrubber. At all times, these tanks were routed to the scrubber, which has a control efficiency of 95%. The bulk of the emissions from these tanks are hydrochloric acid (HCL), an air toxic. Ferro is, and remains, a minor source of air toxic emissions. Thus, the overall risk from this minor source of air toxics is, and remains, negligible.

As with the previous violation, there is a failure to account for these emissions in the overall total for a permitted source. Clearly, there is no substantial risk of harm associated with the failure to account for these tanks in a permit.

Nature and Gravity:

The calculations for EIQ No. 11-82 did not include twelve tanks. They did however, contain seventeen other tanks. Thus, the intent of the requirement was met (i.e., applications were submitted

⁵ The VOC emissions from the 6 sources listed CCONPP Section VI.B were added, then the 98% control efficiency was factored in.

FOR SETTLEMENT DISCUSSIONS ONLY

and underlying calculations included). Substantial implementation of the requirements did occur.

Conclusion:

For settlement purposes only, the violation could be classified as minor-moderate.

CCONPP Section VI.D:

Tanks vented to the atmosphere.

Risk of Harm:

The total amount of VOC emissions from these 13 tanks is no more than .35 TPY (700 pounds per year). Two of the tanks (TS 915A [.26 TPY VOC] and TS209 .03 TPY VOC]) account for .29 TPY (VOCs) of this total. Six of these tanks emit less than .01 TPY VOC. Four of the tanks emit less than .05 TPY hydrochloric and sulfuric acid.

By way of contrast, it should be noted that Ferro is currently permitted to emit 42.01 TPY VOCs and has been permitted to emit up to 75.90 TPY VOCs (No. 0840-00023-01, issued April 4, 1991). Overall, a VOC emission increase of 700 pounds per year in a highly industrial area poses little incremental risk to the health of the general public.

Nature and Gravity:

TS915A (by far, the largest "emitter" of these sources, with VOC emissions of .26 TPY) is mentioned as part of Emission Source 1-89 (Tank Vents) in every permit from No. 0840-00023-01, issued April 4, 1991, through No. 0840-00023-06, issued, February 18, 1998. LDEQ itself stopped attaching the list of sources covered under Emission Source 1-89 in permits issued after February, 1998. In fact, TS915A is listed as part of "Emission Point 1-89 Storage Tanks" in permit applications as recently as the April, 2003 Permit Application. See April, 2003 Permit Application, Attachment B. This source should actually be dropped from consideration for a penalty, but if it is considered as part of the total, substantial implementation did occur.

Twelve other tanks were not listed in permit applications as part of Emission Source 1-89, or any other source. However, forty-eight (48) other tanks were listed in the April, 2003 Permit Application, Attachment B. Thus, substantial implementation did, in fact, occur.

Conclusion:

For settlement purposes only, the violation, as a whole, could be classified as minor-moderate.

CCONPP Section VI.E:

Various tanks in the CCB Unit permitted to vent to the plant flare were no longer connected to the plant flare (EIQ No. 1-93).

FOR SETTLEMENT DISCUSSIONS ONLY

Risk of Harm:

Ten tanks previously routed to the flare (EIQ No. 1-93) were disconnected from the flare sometime between January and September, 2003. They were emptied in December, 2003 and are listed in the December, 2003 Permit Application to provide operational flexibility for Ferro should they be put into use in the future.

Generally, the emissions from these tanks were in the nature of evaporative emissions, or "breathing losses." By their very nature, these types of emissions are negligible. It is unknown exactly what the breathing losses might have been. However, even if the tanks are used, emissions are calculated and authorized to be no more than 0.74 TPY VOC.

Because the exact level of emissions is unknown at this time and because they are air toxics, it is possible that the potential for measurable detrimental impact exists. LAC 33:I.705.A.1.b. Thus, this violation could be classified as moderate.

Nature and Gravity:

The ten tanks were disconnected from the flare sometime between January and September, 2003 and then emptied in December, 2003. Prior to that, these tanks were always properly permitted and routed to a control device. At best, the act of disconnecting is a deviation from the regulations, but because of past permitting, some implementation did occur.

Conclusion:

For settlement purposes only, the violation could be classified as moderate-moderate.

CCONPP Section VI.F:

Various tanks were not included in the permit's "Insignificant Activities" List.

Risk of Harm:

The total amount of emissions from <u>all</u> insignificant sources at the facility is only 1,352 pounds per year. Fifty-five (55) insignificant sources were not listed in the permit applications. Obviously, the emissions from the these 55 sources would be much less that the total emissions for all the insignificant sources.

By definition, these sources are insignificant. By regulation, no controls are required and there is no need for a permit. DEQ regulations would not allow these sources to forego permitting or controls if a risk of harm was associated with them. However, regulations do require that they be listed in a permit application. The failure to list these insignificant sources in a permit application poses no risk to the environment or public health. It certainly does not present actual harm or a substantial risk of harm and can be equated to a "paperwork" violation.

FOR SETTLEMENT DISCUSSIONS ONLY

Nature and Gravity:

Fifty-five tanks were not included in the "Insignificant Activities" list. However, sixty-nine others were included. Thus, the intent of the requirement was met and substantial implementation of the requirements did occur.

Conclusion:

For settlement purposes only, the violation could be classified as minor-minor.

CCONPP Section VI.G:

Electrolyte loading was not included in the Total VOC limit for EIQ No. 1-86.

Risk of Harm:

Electrolyte loading was overlooked in calculating the emissions from EIQ No. 1-86. Instead of 1.88 TPY, the actual emissions, including those from electrolyte loading, should be 1.91 TPY, a mere .03 TPY increase. This amounts to 60 pounds per year, an amount that creates little or no risk of harm.

Nature and Gravity:

EIQ No. 1-86 is a permitted source. However, due to an oversight, the emission calculations did not include electrolyte loading, raising VOC emissions a mere sixty pounds. Clearly, substantial implementation did occur for this permitted source.

Conclusion:

For settlement purposes only, the violation could be classified as minor-minor.

CCONPP Section VI.H:

HCl emissions were not fully recorded.

Risk of Harm:

HCL emissions were recorded for the flare as required by Specific Condition No. 9 of the June, 2003 permit. However, Ferro did not fully conform to "this recordkeeping requirement" (quote taken directly from CCONPP Section VI.H). Although this is an air toxic, the failure to keep records did not increase HCl emissions or create a risk of harm.

Nature and Gravity:

Specific Condition No. 9 of the June 12, 2003 permit requires Ferro to calculate and record all HCL emissions monthly as well as total HCL emissions over the last twelve months. Calculations and record-keeping of HCL emissions were in fact done (thus meeting the intent of the requirement), but not in the exact manner prescribed by LDEQ in the permit. Substantial

FOR SETTLEMENT DISCUSSIONS ONLY

implementation did in fact occur. On January 20, 2004, Ferro submitted a report with the required information.

Conclusion:

For settlement purposes only, the violation could be classified as minor-minor.

CCONPP Section VI.I

Certain discharges of toxic air pollutants were not properly reported and exceeded permitted emission limits.

Risk of Harm:

The regulations require notice of unauthorized discharges of toxic air pollutants. LAC 33:III.5107.B.3. Ferro was unaware of these unauthorized discharges until recently and did provide notice at the time it became aware. The lack of notice to LDEQ, in and of itself, does not cause a risk of harm. Furthermore, Ferro is a minor source of air toxics.

Nature and Gravity:

As stated in the CCONPP, Ferro was "not aware until recently" that these emissions exceeded point source limits. Notification was provided on November 20, 2003. It should be pointed out that no air toxic not previously permitted was ever emitted. These were simply emissions above those set forth in the permit. Thus, substantial implementation did occur in that Ferro did not emit an unpermitted TAP, but exceeded the limits set out in its permit. Further, when discovered, these discharges were promptly reported.

Conclusion:

For settlement purposes only, the violation could be classified as minor-minor.

B. Violator-Specific Factors:

1. Gross Revenues:

Gross revenues for Ferro Corporation were submitted under separate cover to LDEQ. The Ferro facility in Zachary, although part of a larger company, operates as a quasi-independent unit. After two years of losses, the facility has just returned to a measure of profitability.

2. Degree of Culpability, Recalcitrance, Defiance, or Indifference:

Ferro has never displayed any hint of recalcitrance, defiance, or indifference to the regulations. It was Ferro's own internal audit that discovered these violations. Ferro has cooperated with the LDEQ at all times. Although Ferro is culpable in the sense that these sources are owned,

FOR SETTLEMENT DISCUSSIONS ONLY

operated, and located at the Ferro site, there was never any intention to commit any violations. Even past LDEQ air quality inspections failed to reveal the situation. Internal reviews begun on Ferro's own initiative uncovered these sources, which were promptly self-reported to LDEQ.

3. Reasonable Attempts To Mitigate:

This factor requires a reasonable attempt by the Respondent to mitigate "the damages caused by his noncompliance or violation." La. R.S. 30:2025(E)(3)(a)(viii). There is little or no damage to the public health or the environment as a result of the failure to include the tanks in a permit. However, in terms of damages to the regulatory program, Ferro promptly mitigated any such damages.

Ferro voluntarily disclosed these issues to the LDEQ on or about September 19, 2003. As information became available thereafter, the initial disclosure was supplemented and amended on or about October 10, 2003 and again on November 20, 2003. On December 3, 2003, Ferro applied for a permit modification to its minor source permit to insure that the permit was up-to-date and accurate. The permit modification has not yet been granted as of this writing. In January, 2004, Ferro submitted a revised 2002 Toxic Emissions Data Inventory (TEDI) Report and a revised 2002 Emission Inventory System (EIS) Report.

Ferro also immediately began to cooperatively work with LDEQ to obtain the CCONPP that provided interim authorization for the tanks. Ferro submitted a draft CCONPP to LDEQ on December 24, 2003. The CCONPP was issued by the LDEQ on May 26, 2004.

Ferro is in compliance with LDEQ rules and regulations. A more detailed discussion of the specific institutional and process controls implemented by Ferro is discussed in Section II, infra.

4. Noncompliance Reported or Concealed:

Ferro voluntarily self-disclosed these violations to the reported to the LDEQ. There has been no attempt at concealment.

Ferro began an internal review of its Leak Detection and Repair ("LDAR") program in the summer of 2003. At the end of that process, it discovered the discrepancies between its operations and its permit. Ferro self-disclosed the violations on September 19, 2003. Updates and supplements were filed on October 6, 2003 and November 20, 2003. Obviously, Ferro did everything in its power to insure that these violations were promptly and fully disclosed to LDEQ.

Mr. Harold Leggett
June 21, 2004
Page 13
FOR SETTLEMENT DISCUSSIONS ONLY

5. History of Previous Violations:

Ferro has never been cited for these same air quality violations and has not received an air quality citation since 1988. Ferro has not been formally cited for any violations since 1998.

C. Other Factors

1. Monetary Benefits Realized Through Noncompliance:

Ferro derived virtually no monetary benefits from the alleged noncompliance. Ferro incurred costs to apply for its permits and modifications thereto. Ferro incurred costs to compile and submit the Application. All permit fees were timely paid. Based on the Application, there are no controls that should have been installed that were not previously installed. Thus, these violations have provided only slight monetary benefit to Ferro in delayed costs associated with permitting the sources.

Even assuming that there is a slight monetary benefit, it is completely offset by the costs in time and resources incurred by Ferro to conduct the internal point source review that led to the discovery of these sources and the self-disclosures. In fact, Ferro has incurred over \$200,000 in costs to come into compliance.

2. Enforcement Costs

In association with the issuance of an actual Penalty Assessment, LDEQ's enforcement costs are expected to be minimal. The violations were self-reported and a CCONPP draft was produced by Ferro. There were multiple revisions compiled by LDEQ and Ferro.

II. Mitigation Measures

In addition to the steps mentioned in Section I.B.3, above, Ferro has taken all necessary and proper steps in insure that these violations do not occur in the future. Ferro has: created a workable database of all emission sources; created procedures in which the database is continuously updated; and instituted ongoing training for plant personnel.

Ferro created a database of all tanks at the facility using, as its basis, the information in the December, 2003 Permit Modification Application. Each tank is listed, along with pertinent source information, such as volume, location, use, contents, controls, and permit status. The management of change procedures provide the institutional controls necessary to insure that any change is entered into the database.

Mr. Harold Leggett
June 21, 2004
Page 14
FOR SETTLEMENT DISCUSSIONS ONLY

Further, no addition or modification of any source is allowed unless and until the appropriate approvals are received. When it is necessary to add a source, or modify an existing source, request must be made to plant and environmental management. When such a request is received, plant environmental personnel will seek all necessary approvals, including a permit modification if necessary, from the LDEQ. Once approval is received from LDEQ, notice of the approval is given to operations and the appropriate entry made into the database.

Plant personnel have been trained in these procedures. Training will continue until every person receives sufficient training to be well-versed in compliance with these procedures. Annual training will be provided to refresh plant personnel. Ferro has supported the increased accountability of personnel with a more robust disciplinary process.

III. Similar Penalties

As stated above, the discussion assumed that each section of the CCONPP is treated as a single penalty event. LDEQ should exercise the great discretion it has to treat all the violations as single penalty events. As a matter of policy, LDEQ should seek to reward those who voluntarily self-disclose. Ferro's voluntary self-disclosure, its institution of controls sufficient to insure that these violations never occur again, and the lack of any measurable environmental harm should induce LDEQ to consider each section of the CCONPP as a single penalty event.

Two recent settlements highlight that the LDEQ has utilized its discretion to treat multiple emission points under the single penalty event concept. ⁶ In Neumin, which was finalized on May 11, 2004, the LDEQ chose not to treat each emission point at each of the approximately 29 facilities at issue as a separate penalty event. In Samuel Gary, Jr. & Associates, Inc. and Kasier-Francis Oil Company, which recently received the initial approval of this administration and is just beginning the process of routing through the LDEQ for signatures, a similar discretionary choice was exercised. LDEQ treated the failure to obtain a permit prior to initiation of emissions at four facilities as a single penalty event and the failure to install controls at the four facilities as a single penalty event. LDEQ did not look at each emission source at each facility as a separate penalty event.

The LDEQ recently settled a case with Ecological Tanks, Inc. for \$12,000. Tecological Tanks did not self-disclose the violations at issue, which were discovered as a result of a complaint investigation. Ecological Tanks was charged with operating as a major source of air toxics for at

⁶ In re: Neumin Production Company, Tracking No. AE-CN001-0110, AI No. 89060; and In re: Samuel Gary, Jr. & Associates, Inc. and Kasier-Francis Oil Company, AI Nos. 102411, 87923, 113213, 93579.

⁷ In re: Ecological Tanks, Inc., Docket No. 2003-3160-EQ, Tracking Nos. AE-NP-99-0143 and AE-CN-01-0358, AI No. 28079.

FOR SETTLEMENT DISCUSSIONS ONLY

least three years without a permit. No MACT analysis was performed. Further, Ecological Tanks failed to submit certificates of compliance, failed to submit some Annual Emission Inventories at all and failed to submit others in a timely manner, and failed to timely submit its semiannual monitoring report. Most importantly, Ecological Tanks exceeded its permit emission rate of dimethyl phthalate, a VOC-air toxic, by over four tons per year. Surely, if a major source of air toxics operated for three years without a permit and received a settlement of \$12,000, LDEQ may settle for a lesser amount with a minor source that promptly disclosed its violations.

IV. Offer To Settle

Based on all of the above, Ferro verbally offered to settle this matter for the sum of \$11,500. This letter formally conveys that offer to the LDEQ. The attached table summarizes the violations, penalty ranges, and Ferro's offer. Of course, the offer is based on LDEQ's treatment of each section of the CCONPP as a single penalty event. Ferro reserves the right to reevaluate the categorizations should LDEQ exercise its discretion to treat these violations as anything other than a single penalty event.

The categorizations provided above and in the attached table are reasonable given the circumstances. Many of the categorization could arguably be "minor," but for settlement purposes, a "moderate" categorization was chosen. The penalty ranges were classified as follows: the lower end of the penalty range was used for all "minor-minor" violations; the middle of the penalty range was used for the "moderate" violations; and the high end of the penalty range was used for the "moderate-moderate" violation.

V. Conclusion

Ferro Corporation appreciates the serious consideration that LDEQ will give this settlement offer. As Ferro voluntary disclosed these violations, and promptly rectified them, it should be rewarded for its actions. We are available at your convenience to further discuss this matter.

Sincerely,

BREAZEALE, SACHSE & WILSON, L.L.P.

Mr. Harold Leggett
June 21, 2004
Page 16
FOR SETTLEMENT DISCUSSIONS ONLY

c: Ed Frindt

Karen Khonsari Rhonda Ferguson Andrea Jones Peggy Hatch Jane Lacour Toby Lemaire R. Charles Ellis

CONFIDENTIAL: FOR SETTLEMENT DISCUSSIONS ONLY

Ferro Corporation

Consolidated Compliance Order and Notice of Potential Penalty Enforcement Tracking No. AE-CN-03-0338; Agency Interest No. 3387

Calculation of Penalty Amount: June 16, 2004

Violations in CCONPP	Risk	Nature & Gravity	Penalty Range	Penalty Amount
VI.A: Tanks routed to EIQ 1-93	Minor	Moderate	\$500 - \$1500	\$1,000
VI.B: Emissions to EIQ 1-93	Minor	Minor	\$100 - \$500	\$100
VI.C: Tanks routed to EIQ 11-82	Minor	Moderate	\$500 - \$1500	\$1,000
VI.D: Tanks vented to atmosphere	Minor	Moderate	\$500 - \$1500	\$1,000
VI.E: Tanks in CCB Unit	Moderate	Moderate	\$5,000 - \$8,000	\$8,000
VI.F: Insignificant sources	Minor	Minor	\$100 - \$500	\$100
VI.G: Electroyle loading	Minor	Minor	\$100 - \$500	\$100
VI.H: Monthly HCL emissions	Minor	Minor	\$100 - \$500	\$100
VI.I: TAPs emissions	Minor	Minor	\$100 - \$500	\$100
Total			\$7,000 - \$15,000	\$11,500

The categorizations and penalty amounts decided upon herein are based on treating each section of the CCONPP (Sections VI.A - VI.I) as a single penalty event.

Breazeale, Sachse & Wilson, L.L.P.

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August 13, 2004

13. PAYNE BREAZEALL (1886-1990)
VICTOR A. SACINE, JR. (1903-1979)
MAURICE J. WILSON (1919-1990)
HOWKINS P. BREAZEALE, JR. (1920-1979)

RAINT T. RAINALAS
YVONNE I. REED
MANVILLE F. BORNE
MATINE P. FRICE
WENTH B. LAUF
JOHN M. MADINON, IIIIVAN R. MAYLIALL, III
LAUREN S. COENEN
BRENT P. FREDERICK

ANTINENT P. PALLERIN LERCETTE R. J. (1945) KAYE M. CAMALLERIN SARAH NEY J. MARK ROBINSON R. BENN VINCENT, JR. JOHN B. KINC: WILLIAM C. WALLIM E CHARLES G. BLAZZI, JR.

- BOTABLE CEREBER DESTATE PERMINING AND APPRINISHMENT KING SPECIALIST
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FOR SETTLEMENT DISCUSSIONS ONLY

Mr. Harold Leggett
Assistant Secretary
Office of Environmental Compliance
Louisiana Department of Environmental Quality
P. O. Box 4312
Baton Rouge, Louisiana 70821-4312

Re: Fe

Ferro Corporation, Zachary, Louisiana

Dear Mr. Leggett:

RECEIVED

AUG 1 3 2004

OFFICE OF ENVIRONMENTAL COMPLIANCE ENFORCEMENT DIVISION

Ferro Corporation ("Ferro") is pleased to provide to the Louisiana Department of Environmental Quality ("LDEQ") information regarding the events of September 17, 2003 as they relate to the Risk Management Plan ("RMP") regulations at 40 CFR Part 68 and LAC 33:III. Chapter 59. As you are aware, a leak of benezene phosporous dichloride ("BPD") into the containment area for Tank 1059 occurred as a result of the failure of Pump PD-1059, resulting in a release of hydrogen chloride ("HCL"). Ferro has investigated the events that led up to the failure of September 17 and the root cause of the release. This letter will provide that information to LDEQ.

At this time, as part of these settlement discussions, Ferro does not contest LDEQ's conclusion that Tank 1059 is part of a "covered process" as that term is used in 40 CFR Part 68. Ferro does reserve the right to later contest LDEQ's position. LDEQ has indicated that Ferro is in violation of 40 CFR 68.73(e), 68.73(f)(2), and 68.75(a). Ferro reserves the right to contest LDEQ's conclusion that it committed any violations of the RMP regulations. However, as part of these settlement discussions, Ferro will address these three alleged violations.

EXHIBIT 2B

BR:570946.1

Mr. Harold Leggett August 13, 2004 Page 2

A. FACTS

Ferro has an RMP that was deemed complete by the EPA well prior to September 17, 2004. Exhibit A. Ferro has always had an RMP in place as required by the regulations. Additionally, Ferro has Management of Change ("MOC") procedures in place for the facility (Exhibit B: Management of Change, PRC-PSM-12, Rev. No. 4, Nov. 17, 2002) and has had those procedures in place as required by the regulations. It should be noted that the MOC procedures are applicable to normal, temporary, and emergency changes, as those terms are defined. However, as per the regulations, the MOC procedures are not applicable if a "replacement-in-kind" will occur. 40 CFR 68.75(a); MOC, Sections 7.2 and 9.1.

Tank 1059 is a glass-lined storage tank located in the BzPA area of Ferro's Zachary facility. The tank stores pure BPD, which is manufactured through the batch reaction of benzene and phosphorous trichloride (a regulated substance under the RMP regulations). From each batch reaction, BPD is collected and sent to Tank 1059, where it is circulated for approximately two hours. The circulation is accomplished with a pump, PD-1059. The pure BPD is either shipped from the plant or used to produce BzPA.

Pump PD-1059 is a Wilden M4, Kynar-material pump. Pursuant to Ferro's maintenance procedures, the pump is subject to monthly preventative maintenance checks. Exhibit C: Maintenance Procedure: General Maintenance, Handling, and Repair of Pumps; PRC-MNT-107. On June 4, 2003, the pump was inspected and found to be satisfactory. Exhibit D. At some point thereafter, the pump developed a leak as a work permit was written to "repair or replace PD-1059." Exhibit E. The work permit reflects that the maintenance crew was provided a choice to "repair or replace" the pump. The crew attempted to repair the pump on June 27, 2003.

During the repair job, various parts of the pump were replaced: the o-rings, the center-tee, the SS bands, and the upper and lower 90-degree elbows. It was the upper elbow that ultimately failed. The crew member replaced the existing elbows with elbows he found on a similar-looking pump located in the storeroom. Although he did not verify that the elbows on the pump in the storeroom were the same type material as the elbows on PD-1059, this sequence of events suggests that the crew member thought the elbows in the storeroom were the same material as the PD-1059 elbows and thus, he was making a "replacement-in-kind." As it turns out, the PD-1059 elbows were made of Kynar and the elbows found in the storeroom were made of polypropylene.

Apparently, a new pump was ordered on June 30, 2004 and delivered to the site on July 1, 2003. On July 2, 2003, during the monthly preventative maintenance inspection, the comment "Needs a new pump =?" appears. Exhibit F. PD-1059 is noted as leaking during the monthly preventative maintenance inspection on August 8, 2003. Exhibit G. Based on the documentation,

Mr. Harold Leggett August 13, 2004 Page 3

it would seem as if a decision to actually replace the pump had not yet been made (as evidenced by the notation "Needs a new pump =?") and that a replacement pump was available and on 'stand-by' if and when the decision to replace instead of repair was made.

In the morning hours of September 17, 2004, PD-1059 failed. At 3:50 a.m., a white cloud was noticed in the BzPA area. Investigation revealed two small fires, which were quickly extinguished by Ferro personnel. BPD was found to be leaking from the ruptured elbow on PD-1059 and an HCL cloud was found to be forming over Tank 1059. (HCL is formed when BPD contacts water.) Ferro quickly responded to this incident. By 4:05 a.m., State Police had been notified. Exhibit H. Because of this early warning, a Shelter-in-Place for the nearby state police prisoner barracks was in place by 4:23 a.m., thus protecting the only people in the possible pathway of the HCL cloud, should it ever move off-site. Exhibit I. LDEQ and Ferro personnel monitored for HCL off-site throughout the day. Virtually no HCL was ever detected. Most significantly, HCL readings taken at the state police barracks were "non-detect" (noted as "0.00 ppm" in the LDEQ's Monitoring Report Form). Exhibit J.

B. MITIGATING FACTORS AND CORRECTIVE ACTIONS

Ferro readily admits that a mistake was made in the repair of PD-1059. However, the mistake is the result of understandable human error, rather than a systemic failure. Procedures were in place (and have been in place since implementation of the RMP and PSM regulations), but in this isolated instance, the applicable procedures were not followed through to their fullest extent. A more intensive investigation of the suitability of replacement parts would have been appropriate and would have avoided this problem, but the pump in the storeroom apparently led the employee to believe that the parts were suitable for a replacement-in-kind.

Ferro has taken corrective action to insure that a similar mistake is not made again. For example, Ferro:

- 1. Reinforced prior education of employees on their responsibilities regarding chemicals and processes;
- 2. Reviewed and upgraded standards to address all aspects of handling, operating, and maintenance as to the chemicals onsite;
- 3. Provided further accident prevention/hazard awareness training for all employees;
- 4. Provided additional annual MOC training with testing for all operating and maintenance personnel; and
- 5. Verified that all pumps in high hazard service units are appropriate for the service and that all replacement parts are correctly tagged and labeled.

Mr. Harold Leggett August 13, 2004 Page 4

The LDEQ is asked to consider the following general mitigating factors in making any decisions regarding this matter:

- 1. Ferro has had a RMP in place as required by the regulations which has been deemed "complete" by the EPA;
- 2. Ferro has MOC procedures in place;
- 3. It is reasonable to assume, based on the written record and the investigation of the incident, that the responsible employee believed that he was making a "replacement-in-kind" and so MOC procedures were not applicable;
- 4. The monthly preventative maintenance inspection of July 2, 2004 did not identify PD-1059 as needing replacement; rather, the inspection simply raised the question of whether it should be replaced. See Exhibit F;
- 5. Only 2,308 pounds of hydrogen chloride were released. Exhibit K;
- 6. LDEQ and Ferro monitoring failed to detect any significant amount of HCL in the area surrounding the facility. Exhibit J; and
- 7. There was no damage to the facility or to equipment in close proximity to Tank 1059. Exhibit

C. NINE FACTORS REVIEW

1. Violation-Specific: Risk of Harm and Nature and Gravity

La. R.S. 30:2025(E)(3)(e)(vi) and (ii) require a review of the "degree of risk to human health or property caused by the violation" and the "nature and gravity of the violation."

a. Risk of Harm

The implementing regulations for the Nine Factors defines a "minor" risk of harm as a violation that does not directly present actual harm or substantial risk of harm to the environment or public health. A violation that poses no measurable detrimental effect to the environment and those that are administrative in nature may be considered minor. LAC 33:I.705.A.1.c. A "moderate" risk of harm is one that has the potential for measurable detrimental impact on the environment or public health. A violation "characterized by occasional occurrence and/or pollutant concentration that may be expected to have a detrimental impact under certain conditions" may be considered moderate. LAC 33:I.705.A.1.b. In this instance, the violation(s) fall between "minor" and "moderate."

The BPD that was released from Tank 1059 was contained within the dikes around the tank. However, when BPD is released into the environment and contacts water, it has a propensity to form

Mr. Harold Leggett August 13, 2004 Page 5

HCL. Ferro calculated the amount of BPD released to the diked area and based on that calculation, found that only 2,308 pounds of HCL was released into the atmosphere. Exhibit K.

There are no residential population centers in that direction. There is a state police prisoner barracks at the end of West Irene Road. However, a Shelter-in-Place was issued for the barracks by 4:23 a.m. on the morning of September 17. The prisoners should have been inside, with the air conditioners off, from that point forward.

Beginning in the early morning, LDEQ representatives were on-scene, with a Porta-Sens II air monitoring device that measures HCL in the ambient air. Ferro employees also monitored throughout the day. Virtually no HCL was detected. Significantly, at the largest population center, the state police barracks, the HCL readings, as measured with the Porta-Sens II, were "non-detect" (noted as "0.00 ppm" in the LDEQ's Monitoring Report Form). Exhibit J: LDEQ Monitoring Report Forms.

Thus, it is arguable that there was a potential for measurable detrimental impact. However, based on the low volume of HCL actually released, the direction of the prevailing winds, and the actual 'real-time' monitoring results, there was no actual harm to the environment or public health.

Hence the statement that this violation(s) falls between "minor" and "moderate." For the purposes of this settlement discussion only, Ferro will classify the violation(s) as one posing a moderate degree of risk.

b. Nature and Gravity

The implementing regulations for the Nine Factors note that a minor violation is one in which there is "some deviation from the intent of the requirement." It further defines the minor nature and gravity component as one in which the respondent "deviates somewhat from the requirements of the statutes, regulations, or permit; however, substantial implementation of the requirement occurred." LAC 33:I.705.A.2.c. A moderate violation is one that substantially negates the intent of the requirement. The respondent deviates from the requirements of the regulations, but some implementation of the requirements occurs. LAC 33:I.705.A.2.b.

It is Ferro's understanding that LDEQ is considering three violations: 40 CFR 68.73(e), 68.73(f)(2), and 68.75(a). The violations, along with LDEQ's findings of fact, are as follows:

¹ Ferro acknowledges that it has been sued by many of the prisoners in the state police barracks. However, Ferro contests that it caused them any harm whatsoever.

Mr. Harold Leggett August 13, 2004 Page 6

- 1) 68.73(e): Ferro failed to correct deficiencies in equipment (PD-1059 was identified as needing to be replaced in an inspection conducted on July 2, 2003 and no corrective action was taken prior to the pump failure);
- 2) 68.73(f)(2): Ferro failed to provide appropriate checks and inspections to ensure that the equipment was installed properly and consistent with design specifications (the elbows installed on PD-1059 were not consistent with manufacturer's design specifications); and
- 3) 68.75(a): Ferro failed to implement written procedures to manage changes (MOC procedures were not implemented prior to installing the elbows on PD-1059). Each will be addressed in turn.
- 1) 68.73(e): Ferro did react to the leaking pump. The work order that was written allowed a judgment call to occur, i.e., "repair or replace" the pump. Ferro attempted to repair the pump. The July 2 inspection (which was part of the Ferro's ongoing preventative maintenance program) indicates that no formal decision to replace the pump had been made (See Exhibit F and the comment "Needs a new pump = ?").
- 2) 68.73(f)(2): It is true that the elbows that were installed should have been Kynar and not polypropylene. The employee should have taken additional time to verify that the replacement materials were consistent.
- 3) 68.75(a): The record establishes that the employee understandably believed that he was making a "replacement-in-kind." The MOC procedures and Section 68.75(a), the regulation cited by LDEQ, excludes "replacements-in-kind" from MOC procedures. The MOC procedures (PRC-PSM-12, Attachment 1, Change Qualification Checklist) begin with the question of whether the replacement is one in kind. If so, in accordance with regulations, the MOC procedures do not apply. The employee, because of the similar nature of the pump in the storeroom, apparently believed he was making such a replacement.

These facts are presented to establish that there was, at no time, any intent to deviate from the regulations. At no time did Ferro substantially negate the intent of the regulations. RMP and MOC procedures were in place. The employee was trained in MOC procedures. Because of the similarity to the pump in the storehouse, he seems to have assumed that the materials of construction for the elbows were similar. Although he was incorrect, it is understandable. The RMP regulations were not "substantially negated," rather, substantial implementation did occur. Thus, this violation is "minor" as to its nature and gravity.

For settlement purposes only, the violation(s) should be viewed as "moderate-minor."

Mr. Harold Leggett August 13, 2004 Page 7

2. Violator-Specific Factors:

a. Gross Revenues:

Gross revenues for Ferro Corporation were previously submitted under separate cover to LDEQ. The Ferro facility in Zachary, although part of a larger company, operates as a quasi-independent unit. After two years of losses, the facility has just returned to a measure of profitability.

b. Degree of Culpability, Recalcitrance, Defiance, or Indifference:

Ferro has never displayed any hint of recalcitrance, defiance, or indifference to the regulations. Ferro has cooperated with the LDEQ at all times. There was never any intention to commit any violations. Human error led to this particular incident.

Ferro has previously demonstrated its compliance philosophy. On September 19, 2003, it voluntarily self-disclosed to the LDEQ that a number of tanks and emissions sources at the facility were not included in prior permits.

c. Reasonable Attempts To Mitigate:

This factor requires a reasonable attempt by the Respondent to mitigate "the damages caused by his noncompliance or violation." La. R.S. 30:2025(E)(3)(a)(viii). There is little or no damage to the public health or the environment.

Ferro reported the incident within moments of its discovery. This prompt action led to a Shelter-in-Place at the state police prisoner barracks by 4:23 a.m. The prisoners were protected from any possible ill effects after that time and it is unlikely that any were outside at that time of the morning. Further, LDEQ's own monitoring failed to detect any HCL at the prisoner barracks. Thus, the lack of any readings and the early Shelter-in-Place mitigates against a finding of any human health or environmental impact. It should also be noted that Ferro conducted tests on equipment in close proximity to Tank 1059 and no evidence of any damage from the HCL releases was detected. Exhibit K.

As stated above, Ferro took corrective action to insure that a similar mistake is not made again. Ferro reinforced prior education of employees on their responsibilities regarding chemicals and processes; reviewed and upgraded standards to address all aspects of handling, operating, and maintenance as to the chemicals onsite; provided further accident prevention/hazard awareness training for all employees; provided additional annual MOC training with testing for all operating

Mr. Harold Leggett August 13, 2004 Page 8

and maintenance personnel; verified that all pumps in high hazard service units are appropriate for the service; and verified that all replacement parts are correctly tagged and labeled. Thus, to the extent that there was any damage to the regulatory program, Ferro promptly mitigated any such damage. Ferro notified LDEQ of its corrective responses on November 11, 2003. Exhibit M.

d. Noncompliance Reported or Concealed:

There has been no attempt at concealment. Ferro invited Mr. Kevin Sweeney to the facility and provided him with information regarding these alleged violation(s).

e. History of Previous Violations:

Ferro had never been cited for these same air quality violations. At the time of the incident, it had not received an air quality citation since 1988 or been formally cited for any violations since 1998. As a result of its voluntary self-disclosure of September 19, 2003, a Consolidated Compliance Order and Notice of Potential Penalty was issued in May, 2004.

3. Other Factors

a. Monetary Benefits Realized Through Noncompliance:

Ferro derived no monetary benefits from the alleged noncompliance. In fact, as an RMP had been developed and implemented at the site prior to the incident, full expenditure of the funds that were necessary for achieving compliance were made. It was simply human error, which did not monetarily benefit Ferro, which caused the incident.

b. Enforcement Costs

LDEQ's enforcement costs are expected to be minimal.

D. OFFER TO SETTLE

The classification as "moderate-minor" yields a penalty range of \$3,000 to \$5,000. Based on the substantial mitigating factors (the existence of an RMP and MOC procedures, the prompt warning and notification of the incident, the early Shelter-in-Place, the lack of any off-site HCL readings, and the corrective measures employed by Ferro), there should be no upward adjustment of the minimum value of the penalty range. However, for settlement purposes only, Ferro is willing to pay the mid-value of the penalty range, or \$4,000 per violation. Thus, Ferro is willing to pay the sum of \$12,000 to settle these three alleged violations.

Mr. Harold Leggett August 13, 2004 Page 9

E. CONCLUSION

Ferro appreciates the opportunity to present this information to the LDEQ. Ferro is available at LDEQ's convenience to meet and discuss this matter. Please contact me with any questions or comments.

Sincerely,

John B. King

c: Peggy Hatch, LDEQ, OEC
Lourdes Iturralde, LDEQ, OEC
Toby Lemaire, LDEQ, OEC
Andrea Jones, LDEQ, Legal
Ed Frindt, Ferro
Rhonda Ferguson, Ferro
R. Charles Ellis

TXhibit 6.8.0

Facility Name: Baton Rouge Site EPA ID: 1000 0013 0137



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

Lee Gauthier Ferro Corporation 111 West Irene Road Zachary, LA 70791

July 16, 2002

EPA Facility ID#:

1000 0013 0137

Postmark Date:

07/11/2002

Anniversary Date:

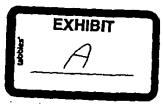
07/11/2007

NOTIFICATION LETTER: COMPLETE RMP

The U.S. Environmental Protection Agency (EPA) received your Risk Management Plan (RMP) dated with the above postmark date. This letter notifies you that your RMP is "complete" according to EPA's completion check. The completion check is a program implemented by EPA to determine whether a submitted RMP includes the minimum amount of information every RMP must provide. The completion check does not assess whether a submitted RMP should have provided additional information or whether the information it provides is accurate or appropriate. In other words, it does not indicate that the RMP meets the requirements of 40 CFR Part 68.

Please note the anniversary date indicated above. Your RMP must be revised and updated by this date or earlier as required by 40 CFR §68.190. Please also note your EPA Facility ID number as identified at the top of this letter; all future Risk Management Plan submissions, corrections and other correspondence must include this number.

Your RMP (excluding the Offsite Consequence Analysis data) can be viewed on RMP*Info™, a national database on the Internet at http://www.epa.gov/enviro.



If you have any questions, please call one of the following numbers:

- (1) For RMP rule interpretation questions, call the EPCRA Hotline at (800) 424-9346 or (703) 412-9810 (in the D.C. Metro area).
- (2) For RMP*Submit installation and software questions, or information on the status of your RMP, contact the RMP Reporting Center at (703) 816-4434, or write to the:

RMP Reporting Center P.O. Box 3346 Merrifield, VA 22116-3346

(3) For more information on the Risk Management Program, you can contact your Implementing Agency. Your Implementing Agency is

U.S. EPA Region 6, Superfund Division (6SF-RP), 1445 Ross Avenue, Dallas, TX, 75202-2733, Phone: 214-665-2292.

Thank you for your cooperation in this matter.

Sincerely,

RMP Reporting Center

Enclosure:

Risk Management Plan (if submitted on paper)



July 3, 2002

PERFORMANCE & FINE CHEMICALS FERRO CORPORATION

111 WEST IRENE ROAD ZACHARY, LOUISIANA 70791 TELEPHONE: (225) 654-6801 FACSIMILE: (225) 654-3268

CERTIFIED MAIL - 7000 1670 0002 2167	981
RETURN RECEIPT REQUESTED	

RMP Reporting Center c/o Computer Based Systems, Inc., Suite 300 4600 North Fairfax Drive Arlington, VA 22203 Attention: Risk Management Plans

Dear Sir or Madam:

RE:

The enclosed diskette contains one revised Ferro Corporation, Baton Rouge Site located in Z Louisiana. The RMP was created using EPA's Ri errors were detected for this RMP by the software

EPA Facility ID# 1000 0013 0137

This revision to the original submission is t chemical at the facility. Note: Please note that t the original submission.

The Risk Management Plan and the followi submitted in accordance with 40 CFR 68, Chemic

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102595-98-8-0229 Domestic Return Receipt		B. Addressee's Address (Only if requested and fee is paid)	7. Date of Delivery 111 1 2 2002	Express Mail M Return Receipt for Merchandise	4b. Service Type Registered	7000 1670 0002 2117 9015	Addressee's Addres	8 5 Z
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To the best of the undersigned's knowledge, information, and belief formed after reasonable inquiry, the information submitted is true, accurate and complete.

Signature

Plant Manager

Title

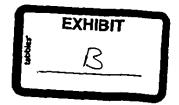
Lee Gauthier
Print Name

7/3 Or

FERRO BATON ROUGE PROCESS SAFETY MANAGEMENT

TITLE: Management of Change	PROCEDURE NO.: REVISION NO.:	PRC-PSM-12
SUPERSEDES: PRC-PSM-12, Rev. 3	PAGE 1 OF 16	11/17/02

CONT	<u>ENTS</u>	<u>PAGE</u>
1.0	PURPOSE	2
2.0	REFERENCES	2
3.0	DEFINITIONS	2
4.0	SAFETY	3
5.0	SPECIAL EQUIPMENT	3
6.0	RESPONSIBILITIES	3
7.0	PROCEDURE DETAILS	5
0.8	DOCUMENTATION	10
9.0	ATTACHMENTS	10



1.0 PURPOSE

- 1.1 The purpose of this procedure is to provide instruction for managing change to operating facilities and methods of operation. In implementing changes at Ferro's Baton Rouge Site, it is the intention that:
 - · Changes will be made in an orderly, safe and well thought out fashion.
 - Changes will be communicated to all affected personnel prior to startup.
 - All affected personnel will be trained, if needed, in the change prior to startup.
 - All appropriate procedures will be updated prior to startup.
 - All process safety and mechanical integrity documentation affected by the change will be updated prior to startup, or arrangements made for this updating.

2.0 REFERENCES

- 2.1 CFR 29 Part 1910.119 Management Of Change
- 2.2 Procedure PRC-PSM-05, Latest Rev. Process Hazard Analysis.
- 2.3 Procedure PRC-PSM-09, Latest Rev. Pre Startup Safety Review.
- 2.4 Procedure PRC-PSM-41, Latest Rev. -- Introduction of New Chemicals or Processes.

3.0 <u>DEFINITIONS</u>

- 3.1 Change or Normal Change Modifications to process chemicals, raw materials, processing conditions, equipment, or instrumentation that are not "replacement in kind.". Also includes modifications to operating or maintenance procedures and changes in personnel/staffing.
- 3.2 Change Initiator The person who has the change idea and initiates the change process. To encourage employee participation and good ides wherever they occur, anyone can initiate a change idea.
- 3.3 Change Owner The person assigned to follow a change project to completion including startup and closeout. The change owner typically is a person from the department proposing the change. This may be a Department Head or his designee.
- 3.4 Emergency Change Changes requiring immediate action to avoid personnel hazards, equipment damage, environmental violations or severe economic penalty.
- 3.5 Facility Siting The distance from or the location of a high occupancy building with respect to a process that stores or handles a highly hazardous chemical.
- 3.6 Highly Hazardous Chemical A substance possessing toxic, reactive, flammable or explosive properties.
- 3.7 High Occupancy Building A permanent plant building with an occupancy level of 400 or more man-hours per week.
- 3.8 MOC Management of Change
- 3.9 MOC Change Qualification Checklist A Management of Change Checklist that details items which must be addressed as part of the overall change. A copy of a typical MOC Change Qualification Checklist is shown as Attachment 1.
- 3.10 MOC Number A unique number comprised of the MOC designation followed by three digit Cost Center Number for Unit followed by consecutive five (5) digit number beginning with the last two digits of the year. Example: The first MOC number for the Utilities Department (Cost Center 020) in 1998 would be MOC-020-98001.
- 3.11 MOC Work Order Any Maintenance Work Order which involves a change as defined in 3.1. 3.4 or 3.13. A typical MOC Work Order is shown as Attachment 2.

- 3.12 Replacement in kind A replacement that meets the design specification and intent of the original. For example, the direct replacement of a worn out part with another of the same or equivalent model, a change in material vendor when the material specification remains the same, a new operator when trained and qualified, are all examples of replacement in kind.
- 3.13 Temporary Change A change that is intended to be removed after a period of time as defined in the change documentation.
- 3.14 WO Work Order

4.0 SAFETY

This procedure specifies the minimum requirements for the management of change at Ferro's Baton Rouge Site as required by OSHA 1910.119. All work done at Ferro's Baton Rouge Site shall be done to assure safe operations of the plant.

5.0 SPECIAL EQUIPMENT

No special equipment is required by this procedure.

6.0 RESPONSIBILITIES

- 6.1 <u>Plant Manager</u> The Plant Manager shall have overall responsibility for the Management of Change (MOC) program at Ferro's Baton Rouge Site.
- 6.2 <u>Department Manager or Change Owner</u> The Department Manager (or formally appointed designee, referred to as the Change Owner) for each cost center shall:
 - 6.2.1 Provide MOC numbers and review and approve all changes within that cost center.
 - 6.2.2 Review the MOC Change Qualification Checklist (Attachment 1) completed by the Change Initiator and ensures that all review/approval signatures are obtained.
 - 6.2.3 Assure that appropriate communication/training of the change is provided to all plant personnel affected by the change.
 - 6.2.4 Assure that all documentation changes, including but not limited to, procedures, Process Safety Information Sheet, training records and drawings related to the change are completed and up-dated as appropriate.
 - 6.2.5 Assure that no MOC related work as described in 3.1, 3.4 and 3.13 is initiated in area of responsibility without an approved MOC Work Order.
 - 6.2.6 Assure that the MOC includes <u>all</u> information necessary to complete the work. Information shall include, but not limited to, brief descriptions, sketches, marked up P&IDs, etc.
 - 6.2.7 Ensure that all changes are performed according to the MOC work order.
 - 6.2.8 Ensure that all documentation changes are completed and the checklist is closed out.
- 6.3 Environmental Manager The Environmental Manager (or his designees) shall:
 - 6.3.1 Review and approve all MOC work orders which would result in addition or removal of components in organic or hazardous material service.
 - 6.3.2 Review and approve all MOC work orders which might result in a permit change.
 - 6.3.3 Obtain any permits, exemptions or variances which might be required by the change.

6.3.4 Complete the Environmental Impact Checklist (Attachment 2).

6.4 Safety Manager

- 6.4.1 The Safety Manager shall maintain a copy of each MOC Change Qualification Checklist.
- 6.4.2 The Safety Manager shall document all Process Hazard Analyses, including those resulting from changes as defined by this procedure.
- 6.4.3 The Safety Manager shall file all revised process safety information related to the change with the original process safety information.

6.5 Maintenance Supervisors

- 6.5.1 The Maintenance Supervisors shall assure that no MOC related work shall be initiated in their areas of responsibility without an approved MOC work order.
- 6.5.2 The Maintenance Supervisors shall update equipment files and documentation in their areas of responsibility.
- 6.5.3 The Maintenance Supervisor shall communicate all necessary information to the Department Manager for updating of P&ID's and applicable drawings and engineering files.
- 6.5.4 The Maintenance Supervisor shall perform only the work as specifically defined by the MOC. No out-of-scope work shall be performed without a new MOC being initiated.

6.6 Engineering

6.6.1 The engineering department shall, on presentation of marked-up drawings, update P&ID's and any other related engineering drawings and documentation as a result of the process change.

6.7 All Employees

General: All employees at Ferro's Baton Rouge Site have a responsibility to comply with the MOC standards as well as the intent of the MOC process. Each employee must hold themselves and other employees accountable for the integrity of MOC. In support of this, the following responsibilities are established:

- 6.7.1 Understanding all related Procedures associated with MOC including:
 - PRC-PSM-12 ~ Management of Change
 - PRC-PSM-09 Pre Startup Safety Review
 - PRC-PSM-05 Process Hazard Analysis
 - SYN-PSM-03 Employee Participation
 - SYN-PSM-06 Operating Procedures
 - PRC-MNT-01 Maintenance Procedures
- 6.7.2 Understand when MOC applies Before implementing any change to process chemicals, technology, equipment or facilities on a process that handles or stores a highly hazardous chemical, MOC must be done. A MOC Change Qualification Checklist (Attachment 1) has been developed to assist in determining when MOC is required.
- 6.7.3 Understand the role and responsibility of the Change Initiator in the MOC process A person proposing the change is the Change Initiator. The Change Initiator begins the MOC by researching the change idea sufficiently to develop the justification, completes the MOC Change Qualification Checklist and

- forwards the package to the Change Owner. The Change Initiator may also assist in completing the MOC requirements of this procedure.
- 6.7.4 Understand the role and responsibility of the Change Owner in the MOC process The Change Owner is the person assigned to follow a change project to completion including startup and closeout. The Change Owner retains ownership and responsibility throughout the change project to ensure MOC is completed. The Change Owner completes or helps complete the MOC requirements of this procedure.
- 6.7.5 Question the completion of all MOC requirements before implementing a change If there is uncertainty that all MOC requirements critical to safe operation have been completed, immediately recommend that the process be returned to its documented safe condition or shutdown.
- 6.7.6 When so requested, participate in MOC either as a Change Initiator, Change Owner, or as a team member on the detailed technical, safety, environmental and operability review. Reviews will be performed utilizing a formal PHA along with the PHA software package. An Operations, Electrical, Mechanical and Instrumentation "OEMI" Team is required for all detailed, technical, safety, environmental, and operability reviews. Where the change may involve additional considerations, such as design practices, metallurgy, or mechanical integrity, the team must be expanded accordingly.

7.0 PROCEDURE

- 7.1 The Change Initiator (any employee of Ferro's Baton Rouge Site) shall complete a Work Order. If in the completion of the Work Order, it is determined that a "change" will occur, the block indicating that there is a request for a process change must be checked.
- 7.2 If the Work Order Change block was checked per 7.1, the Change Initiator shall determine whether MOC applies by reviewing the MOC Change Qualification Checklist (Attachment 1). NOTE: If you have any questions whether a change is covered by this procedure, or for assistance in reviewing the Change Qualification Checklist, the Safety Manager is available to assist you.
- 7.3 Determine whether the change is normal, temporary, or emergency.
- 7.4 For Normal Changes utilize the following procedure:
 - 7.4.1 The Change Initiator shall research the change idea sufficiently to develop the justification.
 - 7.4.2 Depending on the complexity of the proposed change, the Change Initiator should meet with as many people and groups as necessary to develop the scope and justification.
 - 7.4.3 As appropriate, an Operations, Electrical, Mechanical and Instrumentation (OEMI) team approach to scope and justification should be considered.
 - 7.4.4 The Change Initiator shall complete the Environmental Impact Checklist (Attachment 2) and review the proposed change for environmental impact with a member of the environmental group. This step is critical to ensure that the potential effect on environmental emissions or the need for modifications to environmental permits be identified early in the change process.
 - 7.4.5 If the Change Initiator has any questions regarding completion of these requirements, the Safety Manager is available to assist.
 - 7.4.6 The Change Initiator shall present the proposed change to the Department Head of the cost center in which the change is to occur. The purpose of this step is to ensure time and resources are not committed to ideas that the operating department does not want or support.
 - 7.4.7 If the Department Head concurs that the change is needed, a Change Owner will be designated.
 - 7.4.8 At this point, responsibility for completion of the change process transfers to a Change Owner. The individual serving as the Change Initiator may become the Change Owner, or it may be more efficient to assign the responsibility for implementation and follow through to another individual. Assigning of the Change Owner may require coordination between the various departments.
 - 7.4.9 The Change Owner shall assign an MOC number. Each MOC Work Order and MOC Change

Qualification Checklist will be assigned a MOC Number and a log of the issued numbers with a brief description of the change will be maintained.

- 7.4.10 At a minimum, the Department Head of the Cost Center must approve the MOC Change Qualification Checklist and work orders. Approval is indicated by signature and dating in the indicated spaces on the Request form and work order. NOTE: If a change can effect other cost centers of the plant then approval of the Department head of all affected Cost Centers MUST be obtained.
- 7.4.11 When all approvals are obtained, the top three copies of the work order are submitted to the Maintenance Supervisor of the area where the change is to be done. The bottom copy of the work order and the MOC Change Qualification Checklist shall be retained by the Change Owner.
- 7.4.12 Upon receipt of an approved MOC Work Order, the responsible Maintenance Supervisor shall order necessary materials and schedule actual work. When maintenance personnel are assigned to the particular work they shall be provided with a copy of the approved MOC Work Order.
- 7.4.13 The Change Owner shall notify environmental, safety, the lab, operations and other groups that they may need to give input or need to be aware that the project has been approved.
- 7.4.14 The Change Owner shall work toward completion of the preliminary technical design given that the work scope should be sufficiently developed at this step to thoroughly describe the intent of the change including the impact of the change on safety and environmental.
- 7.4.15 The Change Owner shall ensure that dialog between various groups to provide input to the preliminary technical design is occurring. Coordination meetings should be held as necessary.
- 7.4.16 The preliminary technical design should have the following items as outputs:
 - 7.4.16.1 A description and the purpose of the change.
 - 7.4.16.2 The technical basis for the change.
 - 7.4.16.3 Safety and health considerations.
 - 7.4.16.4 Mark-up or create relevant P&IDs to show the proposed change.
 - 7.4.16.5 Other relevant process safety information such as equipment data sheets, MSDS's, etc.

NOTE: If the Change Owner has any questions as to what information is necessary to complete this step, the Safety Manager is available to assist.

- 7.4.17 The type of complete detailed technical, safety, environmental and operability review depends upon the complexity of the change being considered. Where the change is minor, completing all of the elements of the preliminary technical design and performing a MOC Safety Review Session (Section 7.4.22) should suffice. Where the impact of the change is more complex or significant, a formal Process Hazards Analysis (PHA) using an appropriate methodology such as a Hazard and Operability (HAZOP) study, a What-If checklist, or some other approach may be more appropriate. The following questions shall be considered for which type of review is more appropriate:
 - 7.4.17.1 Does the change add significant potential risks to plant personnel, the public, or the environment?
 - 7.4.17.2 Does the change involve major physical changes, such as the addition of several pieces for process equipment?
 - 7.4.17.3 Does the change affect a large part of the process unit or downstream units?

If the answer to any of the above questions is yes, a PHA shall be conducted per procedure PRC-PSM-05.

- 7.4.18 The purpose of the PHA is to review the design and operating intent of the proposed change for safety and operability issues that may have been inadvertently overlooked during the preliminary design. It is also intended to look for effects when deviations from normal operations might occur.
- 7.4.19 The Change Owner must provide all participants with all materials, drawings and appropriate information in advance of the PHA review so that they have time to become familiar with the proposed change.
- 7.4.20 PHA reviews shall be well planned and should, whenever possible, be scheduled with at least one week's advance notice.

- 7.4.21 If it is determined that a PHA is the most appropriate method to complete the detailed technical, safety, environmental and operability review, the Safety Manager shall be responsible for the following:
 - 7.4.21.1 Identify and select the appropriate team for conducting the PHA. As a minimum, an OEMI team shall be assembled.
 - 7.4.21.2 Determine the PHA methodology (HAZOP, What-If Checklist, or other approach).
 - 7.4.21.3 Schedule the resource room or location and notify participants of the date, time and location.
 - 7.4.21.4 Lead the PHA or alternatively, arrange for a trained facilitator to lead the PHA.
 - 7.4.21.5 Scribe for, or alternatively arrange for a scribe, to document the PHA.
 - 7.4.21.6 Make assignments for the resolution of any unresolved action items resulting from the PHA. Recommendations generated by the PHA should be resolved by the team to the extent possible and incorporated into the scope of the job.
 - 7.4.21.7 Enter any unresolved action items resulting from the PHA into the Safety Improvement database.
 - Note: The PHA report will take the place of the MOC Safety Review Session (section 7.4.22 of this procedure).
- 7.4.22 If the answers to the questions in 7.4.17 are all no, then a MOC Safety Review Session shall be the most appropriate method to complete the detailed technical, safety, environmental and operability review. The purpose of the MOC Safety Review Session is to verify the following:
 - 7.4.22.1 That the impact on health and safety has been addressed.
 - 7.4.22.2 That process safety and mechanical integrity information that may change as a result of the proposed change gets updated prior to implementing the change.
 - 7.4.22.3 That operating or maintenance procedures that may change as a result of the proposed change get updated prior to implementing the change.
 - 7.4.22.4 That employees affected by the change are informed of or as appropriate trained in the change prior to implementing the change.
- 7.4.23 Completion of the MOC Safety Review Section is intended to serve as a final OEMI review of the design and operating intent of the change and to consider as appropriate effects of deviations from normal operations that might occur that may have been inadvertently overlooked during the preliminary design.
- 7.4.24 The Change Owner shall provide sufficient, advance information to the participants to complete the MOC Safety Review.
- 7.4.25 The Change Owner shall be responsible to complete the following:
 - 7.4.25.1 Assemble the appropriate individuals to review the change. A team effort and group review meeting is expected. As a minimum, an OEMI team shall be assembled.
 - 7.4.25.2 Facilitate the meeting to ensure that all items listed in Section 7.4.22 have been addressed.

 Recommendations generated by the team should be resolved by the team to the extent possible and incorporated into the scope of the job.
 - 7.4.25.3 Assign action items as appropriate.
- 7.4.26 Unresolved action items resulting from the PHA or MOC Safety Review Session are the responsibility of the person to which they have been assigned. It is that person's responsibility to complete assigned action items prior to implementation of the change. The Change Owner is responsible to monitor and provide periodic follow-up on open action items.
- 7.4.27 Within their areas of responsibility, each department shall complete the final design. If there are any changes to the preliminary design, the change management process is re-initiated at Step 7.4.17 of this procedure and a second detailed technical, safety, environmental and operability review of the final design shall be conducted.
- 7.4.28 Employees involved in operating the process and maintenance and contract employees whose job tasks will be affected by a change in the process shall be informed of, and trained in the change prior to the startup of the affected part of the process.
- 7.4.29 If the change requires a change in the process safety information, the information shall be updated accordingly by the department in which the change is occurring.

- 7.4.30 Within their areas of responsibility, each department shall complete construction, installation or implementation of the change.
- 7.4.31 If there are field changes, a review of the field changes for the impact on safety and health must be considered. If the field changes affect process safety or mechanical integrity information, the change management system is re-initiated at Step 7.4.17 of this procedure.
- 7.4.32 For minor field changes that do not affect process safety or mechanical integrity information, the person responsible for completing the field change shall mark up copies of any affected documents and submit to the Engineering Department utilizing the Document Update Request Form (DURF). The DURF is Attachment 3 of this procedure.
- 7.4.33 The Change Owner shall complete the Pre-Startup Safety Review (PSSR). The purpose of the PSSR is to: 7.4.33.1 Verify that construction has been completed per the approved design.
 - 7.4.33.2 Verify that safety, operating, maintenance and emergency procedures are in place and adequate.
 - 7.4.33.3 Verify that training and/or informing of each affected employee is complete.
 - 7.4.33.4 Verify that process safety and mechanical integrity information have been updated.
 - 7.4.33.5 Obtain necessary approvals and authorizations for startup prior to implementation of the change.
- 7.4.34 It is intended that all items associated with the change be complete prior to implementing the change. Any exceptions are to be noted on the PSSR as exceptions with the appropriate person assigned to complete it. The Exception Items should only be minor exceptions that do not affect safe operation. Such items could include, for example, incomplete insulation, incomplete painting, minor punch-list items or drawings not entered into the permanent files. It is intended that training for all affected personnel be completed prior to startup. Where training cannot be completed prior to startup because affected personnel are on vacation, absent, etc., employees involved in operating the process or maintenance or contract employees whose job tasks may be affected by the change, must be trained prior to operating the process or performing such job tasks.
- 7.4.35 The final PSSR signoff is the Change Owner. The Change Owner will not allow a change to startup until all applicable requirements of management of change have been completed. These include verifying the signoffs are complete for proper construction, informing/training affected personnel, and arrangements made for updating all documents.
- 7.4.36 If the design is complete, all action items have been completed, and there are no exceptions, the Change Owner shall sign off the PSSR indicating the change is ready for startup. The change is now authorized for startup.
- 7.4.37 If the design is complete but not all action items have been complete or there are exceptions, the Change Owner must obtain the sign off of the Safety Manager prior to startup. In this case, the Safety Manager shall verify that all items critical to safe operation have been completed before signing off the PSSR. In the absence of the Safety Manager, the Plant Manger shall verify that all items critical to safe operation have been completed before signing the PSSR.
- 7.4.38 The Change Owner shall be responsible to ensure that any remaining action items or exceptions are completed. Completion of these items will be communicated by the Change Owner to the Safety Manager.
- 7.4.39 Once all work and documentation is complete, the Change Owner will close out the Management of Change.
- 7.4.40 Completion of Documentation -
 - 7.4.40.1 When all work, as required by the MOC Work Order, and all documentation, as required by the MOC Change Qualification Checklist, is completed they shall be filed in a manner which enables ready access for purposes of audit.
 - 7.4.40.2 A copy of the MOC Change Qualification Checklist, and revised process safety information shall be forwarded to the Safety Manager.

7.5 For Temporary Changes, utilize the following procedure:

- 7.5.1 Sections 7.1 through 7.4 of this procedure are identical for a temporary change as described for a normal change except that the change shall be identified as temporary and the time period or removal date for the temporary change shall be indicated.
- 7.5.2 At the conclusion of Section 7.4.38, the following steps shall be completed for temporary changes:
 - 7.5.2.1 The Change Owner, the department manager of the unit where the change occurred, and the Safety Manager will review the change at the agreed time period. The purpose of this review is to determine if the temporary change should be removed, made permanent, or the time period extended. If it is decided the temporary change is to become permanent, or if the time period is to be extended, the management of change process is re-initiated at Section 7.4.6. Removal was the original decision and does not require re-initiation of the MOC process.
 - 7.5.2.2 Complete the necessary MOC requirements to remove or approve for permanent status or extend the time period.
 - 7.5.2.3 The Change owner is responsible for coordinating the removal and ensuring that the equipment, processes and procedures are returned to their original condition. Any process safety information or procedures that were issued or modified as a result of the temporary change must be revoked or changed back.
 - 7.5.2.4 Once all work and documentation is complete, the Change Owner will close out the Management of Change.
- 7.5.3 Completion of Documentation -
 - 7.5.3.1 When all work, as required by the MOC Work Order, and all documentation, as required by the MOC Change Qualification Checklist, is completed they shall be filed in a manner which enables ready access for purposes of audit.
 - 7.5.3.2 A copy of the MOC Change Qualification Checklist, and revised process safety information shall be forwarded to the Safety Manager.

7.6 For Emergency Changes, utilize the following procedure:

- 7.6.1 The Change Initiator shall analyze the situation and recommend that an emergency change be conducted. Emergency changes ARE NOT exempt from Management of Change.
- 7.6.2 Where circumstances arise that require immediate action to avoid personnel hazards, equipment damage, environmental violations, or severe economic penalty, management of change can be expedited but not ignored. In these rare and unusual circumstances, communications will be verbal and paperwork and documentation may be completed after the fact.
- 7.6.3 A technical and safety review shall be conducted on the emergency change. All personnel necessary to conduct an effective review will be contacted. Every effort should be made to conduct this review using an OEMI team. The review may be conducted via telephone conferencing or face-to-face. This review may conclude that the emergency change should not proceed.
- 7.6.4 The design details for the emergency change may be conducted and arrangements made for installation parallel with the technical and safety review.
- 7.6.5 For emergency changes, marking up existing documents and informing and training affected personnel verbally may be done.
- 7.6.6 Install and commission the emergency change.
- 7.6.7 For emergency changes, a Change Owner will be defined to complete or coordinate completion after the fact of all related change management documentation, appropriate documentation of the technical and safety review, updating procedures, process safety, mechanical integrity and other affected documents.
- 7.6.8 If the emergency change is temporary in nature, refer to Section 7.3 above.
- 7.6.9 When all items from the above steps are complete, the Change Owner shall inform the Safety Manager that the emergency change can be closed out.

- 7.7 Discovery of Discrepancy on Process Safety or Mechanical Integrity Documentation
 - 7.7.1 If a discrepancy is found on any process safety or mechanical integrity documentation, it is the responsibility of the person who discovers the discrepancy to initiate a Management of Change review to properly address the discrepancy, if appropriate; otherwise, the DURF form shall be followed.

7.8 Employee Participation

- 7.8.1 Each employee at Ferro's Baton Rouge Site is expected to review this procedure.
- 7.8.2 If an employee has any comments or suggestions, they shall provide their immediate supervisor with a brief description of their suggestion.
- 7.8.3 An employee may also contact the Safety Manager directly with their suggestion (anonymously if desired).

8.0 **DOCUMENTATION**

8.1 The completed MOC Change Qualification Checklist, process safety information and all supporting documentation shall be maintained in the unit process safety file by the Safety Department for the life of the unit in which the change occurred.

9.0 ATTACHMENTS

- 9.1 MOC Change Qualification Checklist (typical)
- 9.2 Environmental Impact Checklist
- 9.3 DRUF

Attachment 1

Change Qualification Checklist

Any change to process chemicals, technology, equipment and facilities on a process that handles or stores a highly hazardous chemical requires Management of Change (MOC). In addition, a change to any process, regardless of the materials handled, that may affect a covered process, also requires MOC.

If you have any questions about Management of Change or this checklist, please contact the Safety Manager.

Items one to three are general in nature and items four to twenty-eight are more specific. If any of the items in questions four to twenty-eight are answered yes, Management of Change is required.

101)	eringa i topata i top		
1	Is the change a replacement that meets the design specification and intent of the original (i.e.,		_ [
1	"Replacement in Kind")? Examples: a direct replacement of a worn out part with another of		
i i	the same or equivalent model, a change in a material vendor when the material specification remains the same, and a new operator when trained and qualified.		
	remains the same, and a new operator when trained and quantien.		
	If yes, Management of Change is not required.	<u>.</u>	
2	Is the change to a facility that is in no way connected to highly hazardous chemicals?		
	Examples: a modification to an existing equipment storage area.	1	
	T		
	If yes, Management of Change is not required.		
3	Is the change covered by an existing Operating or Maintenance Procedure? Examples: connecting temporary lines or hoses for startup, shutdown or maintenance activities when the	•	
Ì.	connecting temporary lines or hoses for startup, singularly or maintenance activities when the connections are part of an established procedure.		
	connections are part of an established procedure.		
,	If yes, Management of Change is not required.		
4	Does the change involve any physical changes to equipment and processes, such as permanent		
}	additions and upgrades? Examples would include: change in exchanger tube metallurgy;		
1	modify air fan speed or design; change heater burner design; change heater tube or hanger]	
	material of construction; change heater controls; add or modify vessel nozzle; modify vessel		
[or pipe internal coating or cladding; change pump impelier size or design; change seal/packing	į l	
	design or material; change pump motor size or horsepower; change control valve failure mode; change orifice size or material; change instrument loop; change valve type; change pipe size or		
	schedule; install hot taps or stopples; re-rate equipment; change pump service; add or delete		
1	analyzers; change instrument ranges; change alarm settings.		
5	Does the change involve addition, change or removal of a process chemical, process additive,		
	catalyst or reactant?		
6	Does the change involve a new use of an existing process chemical, process additive, catalyst		
	or reactant?		
7	Does the change involve adding a new process cleaning chemical?		
8	Does the change alter the maximum intended inventory for a critical process chemical?	 	
9	Does the change create any significant changes in operating conditions, heat and material balances, or process chemistry different from those in the original process design?		
10	Will there be any modification of safety relief requirements or to existing overpressure		
1 .	protection equipment?		
11	Will there be any changes to critical alarms, critical instrumentation, or protective	 	
	instrumentation systems?	<u> </u>	
12	Will the change cause a need for the P&IDs, mechanical integrity documentation, or other		
t	process safety information to be updated?		

13	Will the change affect the jobs of personnel working in the area?	
14	Does the change result in changes to Operating Procedures?	
15	Does the change result in changes to Maintenance Procedures?	
16	Does the change add any temporary facilities or temporary repairs?	T
17	Does the change require environmental permitting or affect existing environmental permits?	
18	Does the change result in any changes in metallurgy?	
19	Does the change cause any changes to electrical area classifications or the installation of equipment (permanent or temporary) that does not meet the electrical classification area?	
20	Does the change involve any changes in facility siting, such as a change involving a high occupancy building?	
21	Does the change result in any significant changes in feedstocks?	
22	Does the change involve a test run on a feed or product?	7
23	Does the change produce a new product stream from existing equipment?	
24	Are any changes made to Advanced Controls, Distributive Control Systems, or to programmable electronic systems outside the realm of "the safe upper and lower limits of operation"?	
25	Does the change add injection or mixing points or change the location of existing injection or mixing points?	
26	Does the change affect fire protection or emergency response requirements?	
27	Does the change involve bypass connections around equipment normally in service?	
28	Does the change shift condensation or vaporization points in exchanger trains or furnaces?	1

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ATTACHMENT 2

ENVIRONMENTAL IMPACT CHECKLIST

Project i	itie:		· · · · · · · · · · · · · · · · · · ·	
W O #		Date	Submitted By:	
Change I	Manageme	nt Tracking Number:	Change Owner:	
Signature	of Environ	mental Representative:		
(To be joint	y reviewed by	change initiator and Environmental Representative)		
Commen	ts/Feedbac	k from Environmental Representative:		
				
revisions standard	s must be t Is applied	pject or changes will have an effect on a filed with state or federal agencies. The to proposed modifications that should to it revision approvals are required prior	ere can be limitations or required design be considered in the design and cost	
YES NO SCREENING QUESTIONNAIRE		NG QUESTIONNAIRE		
		Will the project result in any change device (heater, boiler, gas turbine, inter-	in fuel usage or fuel composition at any combustion nal combustion engine, etc.)?	1
		2. Will the project after the actual or deconsumption of a heater/boiler/turbine/	sign firing rate (heat duty) of or actual volumetric fu CE?	el
		3. Will the project construct a new heat	er/boiler/turbine/ICE?	
		4. Will the project cause a change (inconsumption (actual change in usage?)	ease or decrease) in historical levels of steam	
			peing routed to a flare, heater, or boiler? Be sure to m any source (including pump and compressor	>
		6. Will the project change the rate, freq streams to a flare, heater or boiler?	uency, duration, or composition of existing vents or	•
		7. Is there any change in actual or pote modified or upstream or downstream up	ential feed rate to any unit? (Either the process unit	

YES	NO	SCREENING QUESTIONNAIRE
		8. Is there any change in actual or potential production or yield rates from a unit?
		9. Will the project cause any units to manage or process any new feedstocks, intermediates, products, additives, or treatment chemicals?
		10. Will the project change the speciation of any existing feedstocks, intermediates, products, additives, or treatment chemicals? Will the project increase the sulfur or nitrogen content of any feed streams?
		11. Does the project involve the use of CFCs, PCBs, Asbestos or Lead?
		12. Is there a change in the amount, type, or composition of products loaded / unloaded across the racks?
		13. Will the project add, delete, or restart any fugitive components (pumps, compressors, flanges, valves, connectors, sampling stations)? If yes, contact the LDAR Coordinator. NOTE: All new sample stations must be closed loop/ closed purge.
		14. Will the project change the number of fugitive component counts or service? If yes, provide description of physical location and estimate of the number of each type, by service of components. Attach speciation data for each new service.
		15. Will the project add any new tanks, change any tank throughputs, or change tank services?
		16. Will the project modify the seals or any other fittings or internal components of an existing tank?
		17. Will the project add a new stream, or change the amount or composition of an existing stream, that is to be routed to the sewer system?
		18. Will the project add, modify, or replace any wastewater components; e.g. drains, drain hubs, sumps, sewer lines, catch basins?
		19. Will the project change any surface drainage patterns?
		20. Does the change generate any waste streams (including filters, catalyst, water solubles, carbon, soils, sludge, etc.)?
		21. Will the change after the benzene concentration of any process or waste stream (including spent catalyst, sludge, blowdown, effluents, etc.)?
		22. Does the change generate wastes that will be stored in tanks?
		23. Will the change require disposal of any equipment?
		24. Can any aspect of the change be considered waste reduction?
		25. Will the change involve the placement/modification of any underground equipment or facilities (including sumps, tanks, lines, etc.)?

YES	_NO_	SCREENING QUESTIONNAIRE
		26. Are there any monitoring wells that would be affected by the change?
		27. Will the change result in demolition or removal of asbestos?
		28. Will the change involve drilling or excavation greater than 4 feet deep?
		29. Will the change alter or increase a waste stream?
		30. Will the change result in the introduction of any additives or other materials (including waste materials) that will be handled by drums?

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ATTACHMENT 3

DOCUMENT UPDATE REQUEST FORM (DRUF)

MOC Tracking No	Work Order Number
Unit	
Forward Completed Form to (Engin	eering Department):
DRU Sheet: of	DRUF Originator:
Date:	
SAR CONSTRUCTOR SALES AND THE CONTRACTOR	
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Baton Rouge Site Maintenance Procedure

General Maintenance, Handling, and Repair of Pumps Maintenance Procedure: PRC-MNT-107

Table of Contents

1.0	PURPOSE	2
2.0	REFERENCES	2
3.0	DEFINITIONS	2
	SAFETY	3
5.0	SPECIAL EQUIPMENT	3
6.0	RESPONSIBILITIES	3
7.0	PROCEDURE	4
8.0	DOCUMENTATION	8
9.0	ATTACHMENTS	8



1.0 PURPOSE

- 1.1 To provide guidance in proper methods of <u>preventative maintenance</u> for both positive displacement (PD) and centrifugal (PP) pumps throughout the facility.
- 1.2 To provide guidance in proper methods of <u>inspection</u> of both positive displacement (PD) and centrifugal (PP) pumps throughout the facility.
- 1.3 To provide guidance in proper methods of <u>repairing and rebuilding</u> both positive displacement (PD) and centrifugal (PP) pumps throughout the facility.
- 1.4 To provide guidance in proper methods of <u>testing</u> of both positive displacement (PD) and centrifugal (PP) pumps throughout the facility.
- 1.5 To provide guidance in proper methods of <u>storage</u> for both positive displacement (PD) and centrifugal (PP) pumps throughout the facility.
- 1.6 To provide guidance in <u>tagging</u> of both positive displacement (PD) and centrifugal (PP) pumps throughout the facility.

2.0 REFERENCES

- 2.1 PRC-SAF-02 Lockout/Tagout Procedure
- 2.2 PRC-MNT-07 Rotating Equipment Preventive Maintenance
- 2.3 PRC-PSM-12 Management of Change
- 2.4 PRC-MNT-108 Maintenance Cleaning of Equipment
- 2.5 Pump specific maintenance manuals.
- 2.6 Maintenance / Operations Work Process Flow Diagram (WORK PROCESS7)
- 2.7 PRC-ENG-001 Engineering and Maintenance Codes and Standards

3.0 **DEFINITIONS**

- 3.1 <u>Job Plan</u>: A specific plan for specific maintenance jobs, as defined by 2.6 and created by the Maintenance Planner.
- 3.2 <u>Highly Hazardous Service</u>: Chemicals as defined by OSHA 1910.119, and as defined by 2.6.

3.3 Normal Service: Chemicals not included under High Hazardous service (3.2).
3.3.1 (Note: Normal Service does NOT imply a non-hazardous chemical.)

4.0 SAFETY

- 4.1 Employees should wear all relevant PPE
- 4.2 Employees should verify that proper lockout/tagout procedures are followed.
- 4.3 Employees should follow Hazard Awareness best practices.

5.0 SPECIAL EQUIPMENT

- 5.1 As recommended by manufacturer
- 5.2 As recommended by the Maintenance Planner

6.0 RESPONSIBILITIES

- 6.1 <u>Maintenance Manager</u>: The Maintenance Manager shall be responsible for final review and approval of this procedure, and for the review of job plans for highly hazardous applications.
- 6.2 <u>Maintenance Supervisor</u>: The Maintenance Supervisor shall be responsible for implementing this procedure and providing it to Maintenance personnel who will be performing this maintenance. He is also responsible for assuring that these personnel are properly trained and equipped to perform the procedure as stated.
- 6.3 <u>Maintenance Planner</u>: The Maintenance Planner is responsible for developing a proper plan stating the appropriate repair procedure for each job, and communicating this plan and procedure to the Maintenance Personnel. He is also responsible for periodic onsite job inspection and verifying proper completion of jobs, so that they satisfy process and mechanical requirements.
- 6.4 <u>Maintenance Personnel</u>: Maintenance Personnel (Mechanic) are responsible for following this procedure and the job plan to properly maintain and repair the related equipment.
- 6.5 Operations Personnel: Operations personnel who will be performing lockout/tagout are responsible for following proper procedures.
- 6.6 <u>Maintenance Engineer:</u> Assist Maintenance Personnel in properly and safely carrying out this procedure by providing them with appropriate support and information.

7.0 PROCEDURE

- 7.1 Preventative Maintenance
 - 7.1.1 Preventative maintenance should be performed as outlined in PRC-MNT-07 (Rotating Equipment Preventative Maintenance).
- 7.2 Inspection
 - 7.2.1 Inspection should be performed with a particular awareness as to the pump's service and function.
 - 7.2.2 PRC-MNT-108 (Maintenance Cleaning of Equipment) should be reviewed and appropriate efforts taken as required.
 - 7.2.3 For pumps in normal service
 - 7.2.3.1 Positive Displacement pumps
 - 7.2.3.1.1 Certain wear and failure characteristics are anticipated. When performing an inspection, considerations for these anticipated symptoms should be taken into account.
 - 7.2.3.1.2 Plastic pumps shall be examined for signs of UV exposure and damage. This includes but is not limited to
 - 7.2.3.1.2.1 Discoloration
 - 7.2.3.1.2.2 Loss of surface gloss
 - 7.2.3.1.2.3 Surface chalking
 - 7.2.3.1.2.4 Embrittlement
 - 7.2.3.1.3 Plastic pumps will be checked for cracking at flanged connection points.
 - 7.2.3.1.4 If the pump is used in abrasive or slurry conditions, internal inspection will be required to determine pump condition.
 - 7.2.3.1.4.1 Check valve balls and the ball cages should be examined for wear.
 - 7.2.3.1.4.2 Elastomers and O-rings in the pump should be inspected for damage.
 - 7.2.3.1.4.3 Diaphragms should be examined to determine condition.
 - 7.2.3.1.5 Clamps and bolting should be inspected for external corrosion and wear.
 - 7.2.3.1.6 Check hoses, flanges, and piping for signs of leaks.
 - 7.2.3.1.7 Verify that the main shaft is properly adjusted.
 - 7.2.3.1.8 Positive displacement pumps not addressed above should be inspected via the manufacturer's recommendations and with guidance from the Maintenance Supervisor or Maintenance Engineer.
 - 7.2.3.2 Centrifugal pumps
 - 7.2.3.2.1 Certain wear and failure characteristics are anticipated. When performing an inspection, considerations for these anticipated symptoms should be taken into account.
 - 7.2.3.2.2 Check impeller vanes, wear plate or wear rings. The removable cover plate on many pumps permits quick, easy inspection of the

impeller and wear plate. They will show faster wear when pumping abrasive liquids and slurries.

- 7.2.3.2.3 Check impeller clearance.
 - 7.2.3.2.3.1 If the clearance between impeller and wear plate or wear rings is beyond recommended limits, pumping efficiency will be reduced.
 - 7.2.3.2.3.2 If the clearance is less than that recommended, components will wear excessively.
 - 7.2.3.2.3.3 If tolerances are too close, rubbing could cause an overload on the engine or motor.
 - 7.2.3.2.3.4 Check the impeller clearance against pump manual specifications and adjust if necessary.
- 7.2.3.2.4 Check the seal.
 - 7.2.3.2.4.1 Most centrifugal pumps are equipped with a double seal are lubricated under pressure. If unusual wear is detected in the seal, check the lubrication system for proper operation or contamination.
 - 7.2.3.2.4.2 If the pump has a single seal and it is lubricated with the water being pumped, contaminants can cause rapid wear.

 Inspect and look for potential related wear.
 - 7.2.3.2.4.3 Check and replace the seal if worn. Replace seal liner or shaft sleeve if it has scratches.
- 7.2.3.2.5 Check bearings. Worn bearings can cause the shaft to wobble. Eventually the pump will overheat and sooner or later it will freeze up and stop.
- 7.2.3.2.6 Pump and motor casings will be inspected for signs of corrosion or attack. Any potential issues should be noted on a History Brief and reported to the Maintenance Supervisor or Engineering.
- 7.2.3.2.7 Safety guards will be inspected for integrity and signs of corrosion or attack. Any potential issues should be noted on a History Brief and reported to the Maintenance Supervisor or Engineering.
- 7.2.3.2.8 Centrifugal pumps not addressed above should be inspected via the manufacturer's recommendations and with guidance from the Maintenance Supervisor or Maintenance Engineer.
- 7.2.4 For Pumps in highly hazardous service
 - 7.2.4.1 The general guidelines above in 7.2.2 and 7.2.3 should be followed in addition to the guidelines that follow.
 - 7.2.4.2 Because the pump is in a highly hazardous service, chemical specific and thermal interactions and dangers should be constantly considered and taken into account during the inspection.
 - 7.2.4.3 Components and materials should be documented and verified and/or visually verified as appropriate for the service, and when components are not labeled, labeled insufficiently, or questionable, Maintenance Supervision or Engineering should be consulted.
 - 7.2.4.4 Caution should be taken to reduce or eliminate safety or environmental risks when inspecting highly hazardous service pumps.

7.3 Replace, repair, and rebuild

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- 7.3.1 Pump repairs should always be performed with careful awareness regarding the pump's service and function.
- 7.3.2 PRC-MNT-108 (Maintenance Cleaning of Equipment) should be reviewed and appropriate efforts taken as required.
- 7.3.3 All Pump repairs or rebuilds should always be made with new OEM parts, an in kind replacement, or parts fabricated to match the manufacturer's specifications. Any exceptions to this must be accompanied by a MOC.
- 7.3.4 Before beginning work, Maintenance Personnel (Mechanic) will discuss with the Maintenance Planner the job plan and any safety related issues.
- 7.3.5 The job plan written by the Maintenance Planner for the job will be followed for repairs, replacements, and/or rebuilding of pumps.
 - 7.3.5.1 Positive Displacement pumps in normal service
 - 7.3.5.1.1 See manufacturer's service recommendations, the specific job plan, and any related equipment specific procedures.
 - 7.3.5.2 Positive Displacement pumps in highly hazardous service
 - 7.3.5.2.1 The general guidelines above in 7.3.5.1 should be followed in addition to the guidelines that follow.
 - 7.3.5.2.2 No work will be performed without a job plan written by a Maintenance Planner that has been approved by the Maintenance Manager.
 - 7.3.5.2.3 Upon pump failure, if a spare in kind replacement is available in stock, the stocked pump should be exchanged with the failed pump. This will contribute to reducing down time and reduce risk. This will also allow for the failed pump to be thoroughly cleaned and repaired in a controlled environment (shop).
 - 7.3.5.2.4 When repairing or rebuilding a PD pump, if any part, including clamps, bolting, elastomers, or O-rings, show even minor wear, corrosion, or deterioration, they will be replaced with new parts based upon 7.3.3. Consult the Maintenance Planner and/or Maintenance Engineer for determination.
 - 7.3.5.3 Centrifugal pumps in normal service
 - 7.3.5.3.1 See manufacturer's service recommendations, the specific job plan, and any related equipment specific procedures.
 - 7.3.5.4 Centrifugal pumps in highly hazardous service
 - 7.3.5.4.1 The general guidelines above in 7.3.5.3 should be followed in addition to the guidelines that follow.
 - 7.3.5.4.2 No work will be performed without a job plan written by a Maintenance Planner that has been approved by the Maintenance Manager.
 - 7.3.5.4.3 Upon pump failure, if a spare in kind replacement is available in stock, the stocked pump should be exchanged with the failed pump. This will contribute to reducing down time and reduce risk. This will also allow for the failed pump to be thoroughly cleaned and repaired in a controlled environment (shop).

- 7.3.5.4.4 When repairing or rebuilding a centrifugal pump, if clamps or Orings that are removed during the repair show even minor wear, corrosion, or deterioration, they will be replaced with new parts based upon 7.3.3. Consult the Maintenance Planner and/or Maintenance Engineer for determination.
- 7.3.5.4.5 Any internal or external bolts that show signs of deterioration, corrosion, or wear should be replaced with new parts based upon 7.3.3. Consult the Maintenance Planner and/or Maintenance Engineer for determination.
- 7.3.5.5 Any deviations or discovered variances from the job plan should be discussed with the Maintenance Planner and/or Maintenance Supervisor before continuing work.

7.4 Testing

- 7.4.1 Whenever possible, pumps should be tested and/or inspected for proper repair or rebuild before being placed back into service.
 - 7.4.1.1 The pump should be inspected and tested for:
 - 7.4.1.1.1 Proper assembly
 - 7.4.1.1.2 To prevent potential leakage
 - 7.4.1.1.3 Proper seal functioning
 - 7.4.1.1.4 Correct clearances and assembly
 - 7.4.1.1.5 Proper lubrication
 - 7.4.1.1.6 Correct installation
 - 7.4.1.2 Inspection and testing should be performed with the Maintenance Personnel (Mechanic) and confirmed by the Maintenance Planner.
- 7.4.2 For all pumps in highly hazardous service:
 - 7.4.2.1 All pumps should be tested and/or inspected for proper repair and rebuild before being placed back into service.
 - 7.4.2.1.1 The pump should be dynamically tested using an inert medium.
 - 7.4.2.1.2 When a pre-service test is not feasible, startup will be preceded by a Pre-Start-up Safety Review (PSSR).
 - 7.4.2.1.3 A startup in highly hazardous service will never be the acceptance test.

7.5 Storage

- 7.5.1 Spare pumps will be kept at stores and tagged according to 7.6.
- 7.5.2 Stocked parts will be kept at stores and tagged according to 7.6.

7.6 Tagging

- 7.6.1 All pumps and parts will be labeled clearly and should include:
 - 7.6.1.1 Manufacturer
 - 7.6.1.2 Manufacturer's part number
 - 7.6.1.3 SAP stock number
 - 7.6.1.4 Primary materials of construction
 - 7.6.1.5 Stock and/or purchase date
 - 7.6.1.6 Purchase order number

- 7.6.2 Parts deemed too small for individual labeling
 - 7.6.2.1 Parts should be either:
 - 7.6.2.1.1 Labeled in bulk with the information required in 7.6.1 at the stock location.
 - 7.6.2.1.2 Labeled in bulk with a tag that references a readily available binder or chart containing the information required in 7.6.1.
 - 7.6.2.2 If parts are labeled as described in 7.6.2.1, a concise description of the appearance of the part will be included in the reference or at the stock location.
- 7.6.3 All pumps and parts should have on file:
 - 7.6.3.1 Detailed manufacturer's drawings
 - 7.6.3.2 Detailed materials of construction
 - 7.6.3.3 Manufacturer's purchasing reference data
 - 7.6.3.4 Purchase requisition
 - 7.6.3.5 Purchase order
 - 7.6.3.6 Manufacturer's maintenance manual or repair manual
 - 7.6.3.7 Equipment specifications
 - 7.6.3.8 Work History forms

8.0 DOCUMENTATION

- 8.1 Current PM forms should be completed when Preventative Maintenance is performed.
- 8.2 Work Order and Work History forms should be completed after all work is performed and filed according to 7.6.3.
- 8.3 An approved Job Plan will be included and filed for all repairs or rebuilds on pumps in highly hazardous service.
- 8.4 As appropriate, documentation of inspection or testing of pumps in highly hazardous service should accompany the Work History form.

9.0 ATTACHMENTS

9.1 None.

T = SATISFACTORY

EXHIBIT

BZPA UNIT EQUIPMENT P.M.

1

elts C = Couplings	B = Belts	F = Foundation	보 = 된		Guard	S = Safe Guards	S	H = Heat	H=	2	L = Leaks	N = Noise O = Oil/Grease	= Vibration
		7		-			-	-	-		_	TP-1073 OIL TANK	J-1073
-		1	+-	-	+-	+-	+-	+-	+-	_		WASTE OIL TO STORAGE	J-1072
		k	+	+-	-	+	+	-{	-		1059)	DICHLORIDE TRUCK LOADING (TS-1059)	D-1059
t of some	out	-	1	-		-		+	-	-	 	TS-1055 TO WATER COLUMN	D-1055
•		1	+-	-	 	-	+-	 	 			TS-1052 TO CARBON BED	D-1052
		1	+-	-	+-	+-	-	┼	-	-	_	BENZENE RECOVERY PUMP	D-1047
			+	-	+-	-	-	+-	-	ļ	-	TR-1030 TO FILTER CIRCULATING	D-1030
		K	+-		-	 	+-	-	· 	-		BLEACH TO UNIT (10% BLEACH)	'D-1027
-		7	+	+	+-	+-	-	+-	-	-	1_	PEROXIDE TO TR-1010/TR-1030	D-1013
		<	1.	+-	-	+-	-	+-	-	-	ļ	TP-1011/TP-1012 TO TR-1001/TR-1010	2D-1012
L	CRITICAL	<	+	-	-	-	-	 	1		-	TR-1010 TO FILTER CIRCULATING	PD-1010
		7	+-	 	 	-	-	+-	-	_	-	DICHLORIDE RX. RECYCLE PUMP	PD-1005
	CRITICAL		-	 	-	-	-	 	-			DRYER VACUUM SCRUBBER PUMP	PP-1004A
		7	-	-	-	-	 	-	-		· 	TP-1002 TO TP-1005/TP-1011/TP-1012	PD-1002S
		2	+	 	 	 -	-	+	-	 		TP-1002 TO TP-1005/TP-1011/TP-1012	PD-1002N
		7	1-	+-	+-		-	+-	-	<u> </u>		FUME SCRUBBER BLOWER	PB-1019
	CRITICAL	1	-	-	 	-		-	-	-	ļ	UNIT VENT BLOWER	PB-1010
WORK ORDER NO.	W.	SAT	C	m	יבי	S	H	0	Z	Y		SERVICE DESCRIPTION	NO.
COMMENTS/			4	-	\dashv	\dashv	\dashv	-{	4		_		
Parcalemon-	INSPECTED BY:	INSPEC										14/03	DATE: 6/4

Permit	Number:	1687

work Permit

THIS DOES NOT PERMIT HOT WORK OR ENTRY

	- S. REI	(•
	IT Ricky BEN				•	
·	ace PD-1059 for BZPA				At BZPA	
٥. <i>-</i> -1059				<u> </u>	AL DZFA	<u>.</u>
From	6/27/2003	7:10	То:	6/27/20	03 1800	
Extend To:	Date/Time	Ву:	,	_ Extend To:	Date/Time By: _	
Addit	ional Permits Issued —	— Confined Space		Hot Work:	Lockout/Tagout:	Yes
	ystem last contained: ity Data Sheet is Availab		· .			
Equipment Cond	ition:	-				
OOS: Yes	Depressured: Y		ed: Yes	Empty: Yes Driver Block: No	Valves Closed: No Steamed Out: No	Lines Blinded: No Water Washed: No
	Lines Uncoupled:	lo .		Bleeders Open: No		
Warnings:		- : 	<u>·</u>	 -		
Noise: No		May Have Pressure	:Yes			Overhead Work: No
Cold: No		Avold Skin Contact	Yes		Caust	ic May Be Present No
Hot: No	_	cld May Be Present	=		Leave Area If Emerge	ncy Alarm Sounds: Yes
Flammal	bles May Be Released	On Opening System	:Yes	Toxic Va	apor May Be Released Or	Opening System: Yes
Personnel Protec	ction:					
Safety Wate	th: No Warning	Signs/Lights: No] E	ar Plugs/Muffs: No	Face Shield: Yes	Hood: No
)a Barricade	d:No Eye-Body F	lushing Water: No] impe	rvious Gioves: Yes	Goggles: No	<u> </u>
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Approval to Proc	eed , .		// .		g Under This Permit	
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6/27/0	3 775AK	/· V				
Date a	and Time	-		1		
						,
Equipment Relea	ase (check the appropri	ate box)			· ·	
All Equipmen	t covered by this permit	has been repaired or	serviced, mee	ts the intent of the work	order, and may be returned	i to service.
Work is not o					1λ -	
Mainten	ance Supvr/Enginer/C	ASE Allenon		Contraction	ations Representative	
/	(2 / -12 Z			(2.21 07	2 16'.30	
	Date and Time			<u>e-86-0.</u>	Date and Time	
	Contracting Supervisor			٠		
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	Date and Time			•	I . ⁵	VIIID.

1/2002 PM-BZPA.WK4

EXHIBIT

Page 2 of 5

BZPA UNIT EQUIPMENT P.M.

EXHIBIT						ORY	= SATISFACTORY	Γ≃SA
B = Belts $C = Couplings$	F = Foundation	S = Safe Guards	H = Heat	L = Leaks		N = Noise $O = Oil/Grease$		Vibration
	7					TP-1073 OIL TANK	TP-107	-1073
	7				· -	WASTE OIL TO STORAGE	WAST	-1072
Needs a New Jump -					G (TS-1059	DICHLORIDE TRUCK LOADING (TS-1059)	DICHI	-1059
	7			 		TS-1055 TO WATER COLUMN	TS-105	-1055
				-		TS-1052 TO CARBON BED	TS-105	1-1052
	7			 -		BENZENE RECOVERY PUMP	BENZ	1-1047
	2				TING	TR-1030 TO FILTER CIRCULATING	TR-10)-1030
	-				CH)	BLEACH TO UNIT (10% BLEACH)	BLEA)-1027
	4			-	Ĭ	PEROXIDE TO TR-1010/TR-1030	PERO	<u>)-1013</u>
	4				R-1010	TP-1011/TP-1012 TO TR-1001/TR-1010	TP-101	1-1012
CRITICAL	7				TING	TR-1010 TO FILTER CIRCULATING	TR-101	-1010
	(-	UMP .	DICHLORIDE RX. RECYCLE PUMP	DICHL	-1005
CRITICAL	7	-		-	PUMP	DRYER VACUUM SCRUBBER PUMP	Ĺ	-1004A
	7			 -	P-1012	TP-1002 TO TP-1005/TP-1011/TP-1012	<u>]</u>)-1002S
					P-1012	TP-1002 TO TP-1005/TP-1011/TP-1012	J)-1002N
	<			-		FUME SCRUBBER BLOWER	FUME	3-1019
CRITICAL	70			<u> </u>		UNIT VENT BLOWER	LIND 1	3-1010
COMMENTS/ WORK ORDER NO.	B C SAT	H S F	N O T	V	NC	SERVICE DESCRIPTION		EQUIP.
 -	INSPECTED BY:					112103	7/2	ATE:
	1 .171.	TATAL TANAM	מצות טואנו	DZ.i.				



DATE: B/X/03

BZPA UNIT EQUIPMENT P.M.

INSPECTED BY: Hencelowa

Page 2 of 4

PD-1027 D-1052 D-1047 PD-1030 D-1059 D-1055 D-1072 D-1070D TPA DRUM PUMP 9-1018 P-1017 P-1016 P-1015 D-1087 D-1083 D-1081B VENT SEPARATOR PUMP D-1073 EQUIP. D-1086 D-1084 D-1081A VENT SEPARATOR PUMP -1023 3-1022 -1020S -1020N HCL ABSORBER PUMP NO. DICHLORIDE TRUCK LOADING (TS-1059) PUMP SEAL WATER WASTE OIL PUMP TP-1073 OIL TANK WASTE OIL TO STORAGE BLEACH TO UNIT (10% BLEACH) HCL ABSORBER PUMP PURE DPC PUMP DPC K/O POT PUMP TS-1055 TO WATER COLUMN TPA RECOVERY PUMP TR-1030 TO FILTER CIRCULATING PEROXIDE TO TR-1010/TR-1030 TOLUENE CHARGE PUMP FUME SCRUBBER PUMP CRUDE PDC PUMP TS-1052 TO CARBON BED DRYER RECYCLE H20 PUMP CENTRIFUGE PUMP TP-1011/TP-1012 TO TR-1001/TR-1010 TEMPERED WATER TO DRYER TEMPERED WATER TO TRACING SERVICE DESCRIPTION Z 0 て H ᅺ B \mathbf{C} SAT CRITICAL CRITICAL CRITICAL CRITICAL Same WORK ORDER NO. COMMENTS/ tabbles

Information Required for Uniform Hazardous Materials Reporting Form

Courtesy Call () Reportable Parish East Baton Rouge Parish Incident # 03-06514 Caller's Name: Notified 0405
Caller's Phone # 1925) 154- 6801 Secured O 400
Incident Location 111 West Irene Road, Zachary, Louisiana 70791
Company Ferro Corporation Chemical Released NCl cloud, BPD f: Address 111 W. Irene Rd., Zachary, LA 70791 Oty. Ibs RQ- Ibs
Hazard Class ID EHS () Solid Liquid Gas
Did material go off-site? Yes No Released to: Land Water Air

EXHIBIT H

Major Event 030916D018

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Time & Date of Occurren	ce: 04:23 09/17/2003
Location:	Federal 61 @ West Irene Road
Parish:	East Baton Rouge
Signal:	Desk
Reporting Unit:	A-11
Assisting Unit(s):	
Disposition:	NAT
Notes/Comments:	At this time Troop A was contacted by EBRSO and we were notified of a Benzine Fire at the Ferro Plant at the corner of US 61 and West Irene Road. A Shelter in Place order was given to residents of the area (including the PS minate Barracks). Troop A contacted the barracks to confirm that they were aware of the order, which they were, and we contacted the LSP Haz-Mat Hotline. LSP Haz-Mat had already dispatched TFC Terry Tate to the scene. Troop A PIO Johnnie Brown is enroute, also. Troop A also advised Lt. K. Devall of the situation. A CDJ entry was made. UPDATE 05:40 hrs. Shelter in place still in effect. All roads are open at this time. A-100 @ A-65 on scene. A-22 and A-81 dispatched to provide any assistance needed.

Bold Print This Entry:

No

EXHIBIT

Created on server: 09/17/2003 04:20:47

			2 3 4 5	Ryan Thur ad Ballou		
Œ 00	LOCATION (DESCRIPTION)	PARAMETER JA UNITS	PARAMETER 2	PARAMETER 3	REMARKS/OBSERV ATIONS:	INITIALS
	Road at Dh. Control Not Dh	UNITS PID + P2 FED +/(UNITS 20 -68- (II)-32-	UNITS	Rundings Token	
	Not Dh	FID11.56			,	6B
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	F19: -0.5				3	<u>J</u>
	Z & ro : PED ; 0.15	1				
	ND - Not Detected N/A - Not Applicab	le		PM - Parts Per M PB - Parts Per Bi		

COMPANY NAMI INCIDENT DESCR	иопчи	rro I:	DAT INC	e: <u>09/17/</u> Dent location _III _W. I.e.	9603 ON:	
EQUIPMENT USE 1	D:	SERIAL NUMBE	R: FIE1	Zachack L	M G TEAM: ris I Ryon McNo	6b
TIME LOCA	HOIT	PARAMETER	4 5 PARAMETER	PARAMETER	REMARKS/OBSERV	INITIAL

TIME 24:00	LOCATION (DESCRIPTION)	PARAMETER 1	PARAMETER 2	PARAMETER 3	REMARKS/OBSERV ATIONS:	INITIALS
<u> </u>		UNITS	UNITS	UNITS		<u> </u>
07.08	Uprint	0.0 AN				po
07:18	WITER Rd	0.0 PPN			 	PU
61:F1	JLSP Barrock	0.0 pm				PR
07:36	91251 Barrowks Edmin	0.0 PP2				RU
08:25	OLSP Burnes	O.O PPM				RU
09:00	8 Entrance	O.D PPM				Rd
		<u> </u>				
		<u> </u>				
		}				

EQUIPA			: INCI - 111 - 2a : FIEL 6-80 1 3	E: 9/17/03 DENT LOCATIO W. Trene chary L D MONTORING D MONTORING D MONTORING D MONTORING D MONTORING	RJ. PA B TEAM:	
TIME 24:00	LOCATION (DESCRIPTION)	PARAMETER 1 Clz	PARAMETER 2	PARAMETER 3	REMARKS/OBSERV ATIONS:	INITIALS
8:15	Landfill Gate (North Landfill)	0.02 ppm	UNITS	UNITS	No Odor	9 3 .
8:45	Kaiser Mud Ponds	0.00pm			STRONG ODOR Chamical/Garlic Small	98
18300	W. Irene Rd.	0.00ppm		-	chem/Galic	93.
10:26	Access Ka.	0.00ppm			STRONG OPOR CHEM/Goll. E	93.
10:40	IRENE Rd. (wat of Plant)	0.00ppm			"	22
11:00	(Med Ponds)	0-04ppm			11	99.
11:35	they 61 - State Police areas on W. Iran	0.00ppm	·,		11	93.
12:15	//	0.00pm			slight oder	98.
\$ 05		0.00ppm			No Odor	20
13:20	WIRELE to Rd.	0.00pm			Slight Odor (Hwy 61)	99.
15:30	Naiser Gate	0.00pm			No odor	<i>9</i> 8.
13:15	W. Irene to North Landfill Grake	0.00 ppm			Slight Odor	
	ND - Not Detected N/A - Not Applicable SUMMARY: Background Carhinge, Ser		PF	PM – Parts Per M PB – Parts Per Bil O <u>Calch</u>		

COMPA	NY NAME: (1) INT DESCRIPTION:	10 p/a:nt	DAT INCI Rai	E: <u>9/17/03</u> DENT LOCATIO I Mayer Rd	DN: D. Hny 61			
EQUIP	MENT USED: SI	ERIAL NUMBER ! /᠘-७٥-०452-)	· FIEI	FIELD MONITORING TEAM:				
3 4 5			33					
TIME 24:00	LOCATION (DESCRIPTION)	PARAMETER 1 A: 1 UNITS	PARAMETER 2	PARAMETER 3	ATIONS:	INITIALS		
///	Rail Mayer	O. O	UNITS	. UNITS	No Odors	LTL		
10.010	Raif Mayer D. Awy 61 Mary had Park Farm @ Hay 61	0.0			No odors	HTG		
		 						
<u> </u>	<u> </u>							
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<u> </u>	ND - Not Detected N/A - Not Applical			PM – Parts Per M PB – Parts Per Bi		<u>.L.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>		
	SUMMARY:		<u> </u>	• •		_		
						<u>-</u>		

EQUIP!	INCIDENT DESCRIPTION: BENZENE-Phosphorus Pichlorede ILL W. Irene Rd. Zachary, LA EQUIPMENT USED: SERIAL NUMBER: 1 Portu Sens II. (216-01-0456-BD) 2 Arlae Featrnet								
5	 _	 _	5						
TIME 24:00	LOCATION (DESCRIPTION)	PARAMETER I Cl2 PP ONITS	PARAMETER 2 UNITS	PARAMETER 3 UNITS	REMARKS/OBSERV ATIONS:	INITIALS			
15:30	Senage Treatur End of Gazel Rd	0.00		525	No un sual	APF			
16:00	North Landfill Grate	0.00			No oder	APF			
17:4K		0.00			Slight	APF			
18:0	Raian Mul	0.04			No Oder	AMP			
18.05	W. Iver Rd	0.05			No ola	APF			
19:10	State Police Barracks	0.00		[No oder	APE			
20:00	, 17	0.60			Nooda	APT			
20:		0.00		 	No oder	AME			
21:45	Fence to Training faulth	0.00			accomp by SP	APF			
21:52	Without Rd	0.00			No odar	AVF			
21:5		0.00		· · · · · ·	Nooder	APF			
21:55	Barracks/ Back of Mula	nd 0.00	 	<u> </u>	No odar	APF			
21.50	End of W. Irene Pd	0.00			Nooder	APR			
acc	proported by 50	the Police		<u> </u>	<u> </u>	<u> </u>			
					<u> </u>	<u> </u>			
•	ND - Not Detected N/A - Not Applicab	le		PM – Parts Per M PB – Parts Per Bil					
	SUMMARY: Balk gy	-ud 0.0	oppm @	15:30		<u>-</u>			
						- -			

INCIDE	NY NAME: <u>FU10</u> NT DESCRIPTION: 16 LASC			E: 9-17- DENT LOCATION IL W. IIUME 1	ON:	
EQUIPN 1_TVA	MENT USED: SE	RIAL NUMBER 16130396 6-00-0452-	FIEL 1	Zachry DMONITORING A BRUIN Laren Price		
TIME 24:00	LOCATION (DESCRIPTION)	PARAMETER TVA UNITS	PARAMETER P., to Sch (UNITS	PARAMETER 3 UNITS	REMARKS/OBSERV ATIONS:	INITIALS
1:47	1/1 mi word langt	PID -0.31	0.00 pm	3	No odor	<i>Y6P</i>
1:56	Dart pit sign w. Trevered:	f10-0.21	0.00 pp		No oder	K6P
1	busing factify	P10 0.14 P70-0.38 P10 0.16	0.00 pp	· 	No odor	KEP
2:14p	Virtue Rd.	FID -0.34 PID 6.017	0.00 pp~		NO Odov	KEP
2:25p	16121	\$10-0.237 \$10 0.819	O. Dogon		No oder	K6P
	Hwy 61 (Edday) Hwy 1 at land & 11 accessed	FID-0.41 FID-0.43	0.00 pgn		No adix	16P
2:34	fandtill gate	100.10 FID-041	0.00 ppm		4- 120.	Keb
			\			
 						
						 -
-	<u> </u>		 			-
			\			
	ND - Not Detected N/A - Not Applicab	ole		PM – Parts Per M PB – Parts Per Bi		
	SUMMARY:	ockground	TVA: P partasens	10 0.16 pm	FID -0.43	k (p-
		TANKER P	w. Irere	ed + Hw-	61 at 1:40	<u>*</u> **

03-06514





PERFORMANCE & FINE CHEMICALS
FERRO CORPORATION

111 WEST IRENE ROAD ZACHARY, LOUISIANA 70791 TELEPHONE: (225) 654-6801 FACSIMILE: (225) 654-3268

RECEIVED

001/2/8/2003

RIGHT-TO-KNOW-UNIT

September 23, 2003

Right-To-Know Unit
Office of State Police
Transportation & Environmental Safety Section
Post Office Box 66614
Baton Rouge, Louisiana 70896-6614

Re: Benzene Phosphorus Dichloride Fire and Hydrochloric Acid Release on September

17, 2003

Incident Number: 03-06514

Supplemental Air Release Calculations

Dear Sir or Madam:

Pursuant to the requirements of LAC:33.I.3925.B.5 Ferro Corporation is providing this follow-up notification to the LDEQ to quantify the emissions of phosphines from the Benzene Phosphorus Dichloride (BPD) fire and hydrochloric acid release of Spetember 17, 2003. Initial notification under LAC:33.I 3917 and LAC 33:V.1011.B sent September 23, 2003, only reported the release quantity of hydrochloric acid.

Per our process knowledge of BPD, the only definitive chemicals released to the atmosphere or contained in the diked areas during the September 17, 2003 Benzene Phosphonous Dichloride release were as follows:

Atmosphere: HCl (gas)

Dike: BPD_{liq} and dimers of BPD which are solids.

Ferro never measured any levels of phenyl phosphine during the entire event; however, at approximately 8:00 a.m. there was a slight odor that could <u>possibly</u> be phosphine reported at the westernmost fence line by Ryan Harris of LDEQ. Ferro personnel were immediately dispatched to the area with Draeger tubes and digital analyzers. In the company of Mr. Harris, we were unable to detect any phosphine odors or measurements. Subsequent analytical work on the material pumped out of the dike never indicated any definitive phenyl phosphine peaks on the



GC. Due to the lack of definitive odors or measurements, Ferro made the decision not to report a phosphine release in our initial calculations.

Ferro was requested to assume that the short term odor report of "possible" phosphines was accurate. Based on this odor assumption, the following actions were taken which provide two alternative release calculation scenarios:

An assumption was made that phenyl phosphines were present in the dike material, and

Ferro assumed an odor threshold result for phenyl phosphine was present at 400 meters downwind and 50 meters crosswind from the release point.

Case One: Assumptions of Phenyl Phosphine in Dike Evaporating

Ferro reviewed the chromatogram from 9/18/03, of the contaminated BPD (material recovered from the BPD dike). The chromatograms indicates several small peaks in the region where the phenyl phosphine could elute on the GC. It is unclear which of the peaks (if any) is phenyl phosphine. The largest of these peaks is 0.026% however only 64 percent of this value would actually be phosphines in liquid since the GC does not account for solids (see section 4 of our calcuations for HCl in the letter). Therefore only 0.016 percent of the peak relates to phosphines which relates to 4.5 pounds of phenyl phosphene in liquid BPD released to the containment dike.

Phenyl phosphine has a similar boiling point as diglyme (160C vs. 162C). Diglyme has a vapor pressure of about 5 mm Hg under ambient conditions. Multiplying this by the weight fraction of phenyl phosphine gives the partial pressure of: .00016*5=.0008 mm Hg

Based on this extremely low vapor presuure, Ferro concludes that most of the phosphine remained in the containment area and did not escape to the atmosphere. Assuming that only one percent of the phenyl phosphine in the diked area escaped, and that the total amount of BPD in the dike was 27,060 pounds, the amound of phenyl phosphine that escaped can be estimated as:

.00016*.01*27060= 0.043 lbs of estimated phenyl phosphine released to atmosphere

This level of phosphines would be a worst case scenerio for the calculations.

Phenyl phosphine shows up in significant amounts when the product is totally hydrolyzed, which did not happen in this release. Ferro believes that the main decomposition product is the dimer PhClP-O-PClPh.

Case Two: Assuming Phenyl Phosphine at Fence Line

Ferro took another conservative approach in assigning a positive odor threshold result for phenyl phosphine at the westernmost fence line. An estimation of the phenyl phosphine in the

atmosphere due to evaporation is as follows:

Assumptions:

- Estimating vaporization rate of a liquid ("Chemical Process Safety: Fundamentals with Applications" by Crowl and Louvar) using Eq. 5-48 Continuous, steady-state, source at ground level.
- Wind average 4 mph
- Odor threshold of 0.01 ppm for phosphine (American Industrial Hygene Association).
- Mr. Harris of LDEQ smelled "phosphine" odor at bend of West Irene Rd (approximately 400 meters downwind and 50 meters crosswind from the release point).
- · Assuming "medium" intensity radiation from sunlight

For Phenyl Phosphine:

```
Conc = Q_m / \Pi \sigma_x \sigma_x U
```

Where $Q_m = mass$ flow $\Pi = 3.14159$ $\sigma_{x=} \sigma_{y} = 0.195x^{0.90} = Dispersion coefficients$ $X = 400 \text{ meters downwind for } \sigma_{x}$ $X = 50 \text{ meters crosswind for } \sigma_{y}$

 $0.01 \text{ ppm} = Q_m/3.14159*42.8m*6.6m*1.8m/s$

 $0.083 \text{mg/m}^3 = Q_m/1597 \text{m}^3/\text{sec}$

 $Q_m = 133 mg/sec$

Over 8 hours, the maximum possible phosphine release is 4.2 lbs.

There was a definitive release of HCl gas from the hydrolysis of BPD. The results of our testing and analysis are as follows:

Estimation Method.

- (1) A sample of the spilled and partially hydrolyzed product is vacuum distilled in the lab. The noncondensible portion is assumed to be HCl and will consist of the HCl generated that is still in solution.
- (2) The still pot residue from (1) is analyzed for %Cl after the HCl is removed. We know the amount of Cl that should be present if the residue is 100% BPD. Since it is partially hydrolyzed, the analyzed value will be less than the 100% BPD value. If we predict a decomposition product, we can algebraically figure how much HCl has been lost.
- (3) Chemistry Model. (Ph = phenyl group)

(4) <u>Composition Calculation</u>. BPD has a molecular wt. of 179 and a Cl content of 39.66%. The dimer in the above equation has a molecular wt. of 284.5 and a Cl content of 12.48%. The still pot residue was analyzed at 29.97% Cl. Assuming that the residue is essentially all BPD or Dimer, the % of each can be calculated by:

$$X(39.66) + (100\neg X)12.48 = 29.97(100)$$

 $X = 64.35 = \%BPD$
 $(100\neg X) = 35.65 = \% Dimer$

(5) The % Dimer from (4) can be used to calculate the total % HCl generated as a percentage of the still pot residue. This assumes 3 moles of HCl generated for each mole of Dimer. Molecular wt. of HCl = 36.5.:

$$\frac{3(36.5)35.65}{284.5}$$
 = 13.72% HCl

(6) <u>HCl estimation</u>. The result from (5) is used to calculate the total wt. of HCl in the still pot charge if none had been lost to the atmosphere during the incident:

$$A = (0.1372)(951.49 g) = 130.54 g.$$

The % HCl left in the original pot charge is calculated from the difference between the pot charge and the residue left after the non-condensibles were removed. The non-condensibles are assumed to be all HCl.

$$B = (997.00 - 951.49) = 45.51 g.$$

From A and B, we calculate the HCl lost to the atmosphere as a percentage of the contaminated BPD in the containment area:

$$C = (130.54 - 45.46)100 = 8.53\%$$

$$997.0$$

(7) Pounds of HCl Released. We calculate that 27,060 lbs. of BPD was released to the diked area. Using the calculated loss of 8.53%, we can calculate the lbs. of HCl lost:

$$0.0853 \times 27,060 = 2308 \text{ lbs. of HCl}$$

Summary Results

Listed below are the results of our analytical analysis of the BPD incident. Any reported phenyl phosphine release numbers are based entirely on the "possible" phophine odor reported at 8:00 a.m.

To atmosphere:

HCI:

2,308 lbs

Phenyl Phosphine (possible max):

4.2 lbs (based on case two for a conservative estimate)

To containment:

BPD:

17,413 lbs

Dimer:

9,647

Phenyl Phosphine (possible max): 4.5 lbs (based on case one in liquid form)

Should you require further information, please feel free to contact me at the address above or by telephone at (225) 654-6801, extension 5604.

Sincerely,

Ed Frindt

Plant Manager

cc:

J. Pruitt, Ferro Corporation

K. Khonsari, Ferro Corporation

East Baton Rouge Parish Emergency Planning Committee Post Office Box 1471 Baton Rouge, Louisiana 70821

Attn: SPOC

Unauthorized Discharge Notification Report Louisiana Department of Environmental Quality Post Office Box 82215 Baton Rouge, Louisiana 70884-2215



TO:

J. Valcho

Chemicals

FROM:

D. Gnizak

Analytical/Microscopy

DATE:

February 24, 2004

SUBJECT:

Microscopic Characterization of Corroded Rod from XT1015S

Introduction

A threaded rod and nut marked: "Bottom piping on XT1015S" were examined by optical and electron microscopy in an attempt to determine the extent of corrosion, and impending failure of the material.

Analysis

In initial examination by optical microscopy the corroded rod was compared to a similar rod, which did not show severe corrosion. It was noted that the exposed tip of the corroded rod contained residual material caked into the threads. Although the threads under the nut were free of this material, these are the threads that showed the most severe degradation. These threads had surface crazing and pitting, which indicate that the primary corrosion is occurring under the nut. Several color photographs were made to show the end of the rod with the risidual material and the rod where the nut was removed. Several SEM images were also made of the crazed surfaces in greater detail.

In order to verify the extent that the cracks penetrate into the rod, a cross section was made through the area of crazing and corrosion, marked in the photos. The cross sections show that the cracks penetrate about 40 microns into the rod. An area away from the crazing is included for comparison. There does not appear to be further damage of the internal microstructure, or any indication of impending failure based on this examination.

Conclusions

When compared to another similar rod, the sample in question exhibits surface crazing only under the nut. The residual material does not appear to be causing corrosion of the rod. While thread crazing and pitting may eventually lead to the rod's failure, it is beyond the scope of this analysis to assess whether this damage is significant, or to predict when and if the rod material may actually fail.

The optical and SEM images are attached for your reference. If you have any questions regarding this work, please contact me.

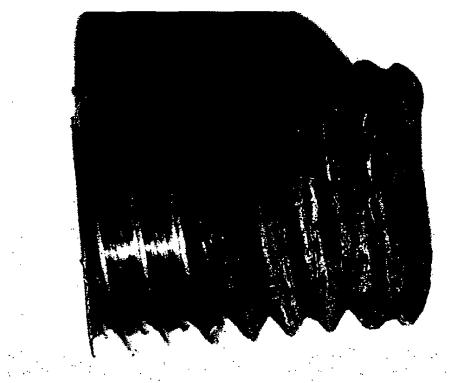
David Gnizak

CC: V. Bryg, M. Eggers, 70-00-3-410-00, AA13487



♥FERRO

MICROSCOPY LABORATORY



"Bolt on Lower Piping - XT1015S" Rod End



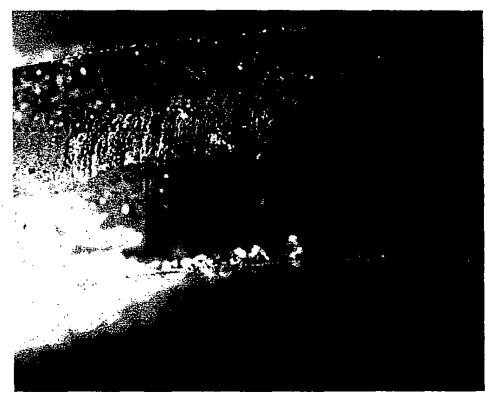
Residue caked into Threads



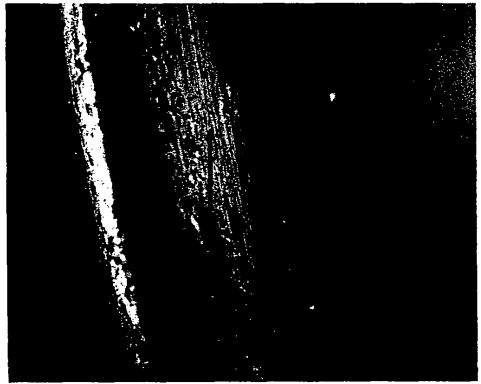
Corrosion on Threads (Under Nut)



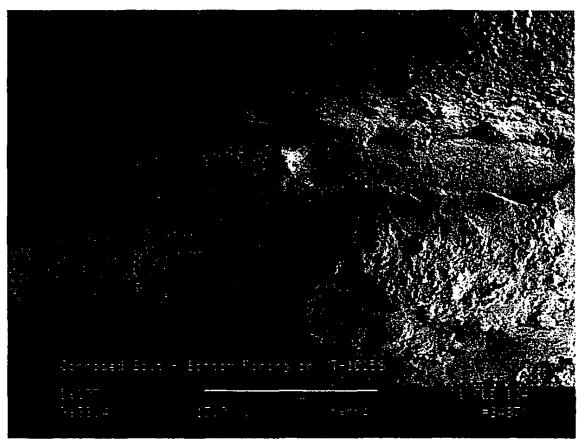
Threads under Nut (Corrosion Pitting)

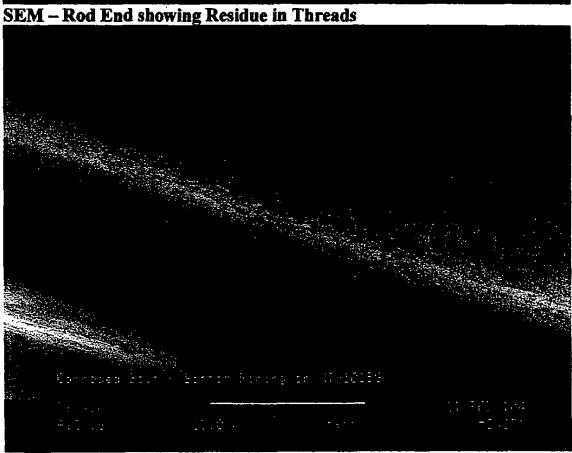


Corrosion Pitting (Area Cross Sectioned)

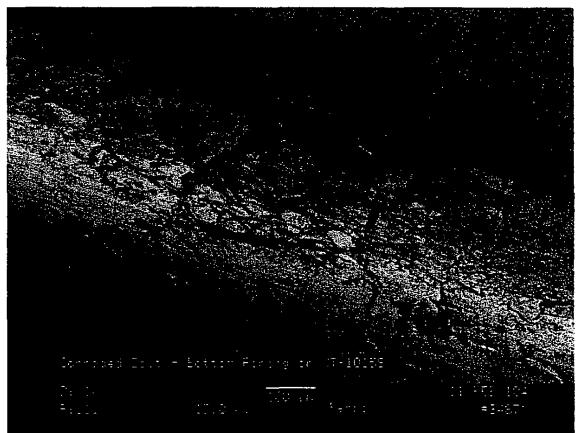


Crazing on Threads

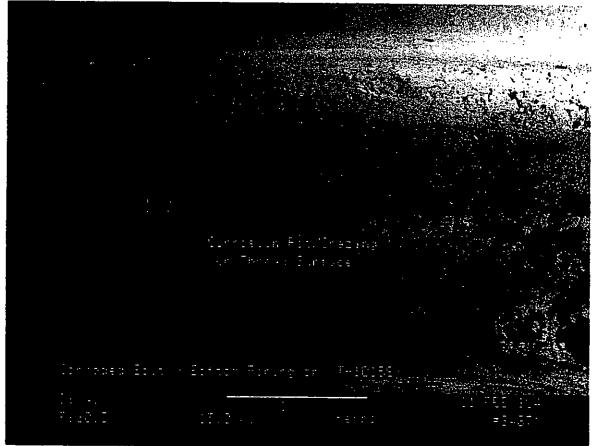




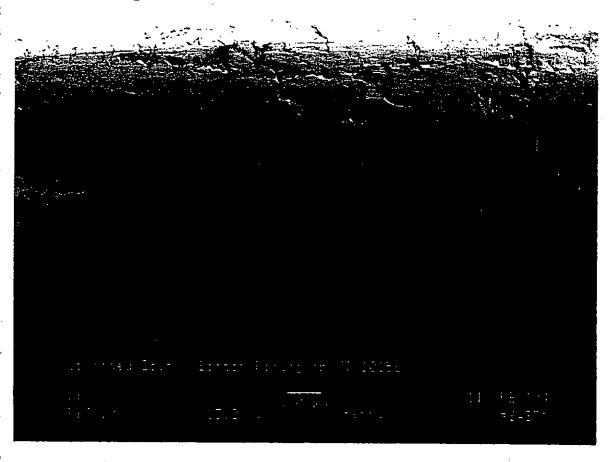
SEM - Crazing on Thread Surface

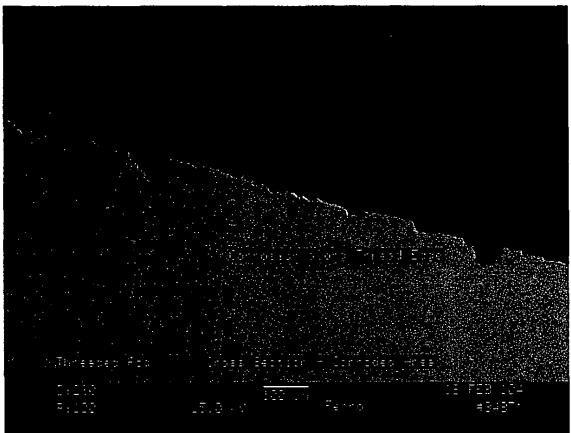


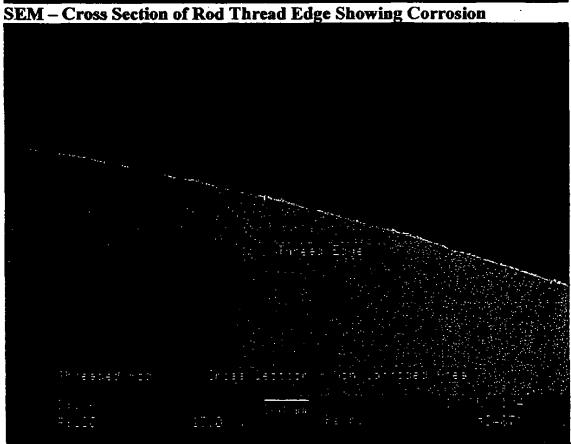
SEM – Crazing on Thread Surface



SEM - Crazing on Thread Surface







SEM - Cross Section of Rod Thread Edge - No Corrosion

AA13487



PERFORMANCE & FINE CHEMICALS FERRO CORPORATION

EXHIBIT

111 WEST IRENE ROAD ZACHARY, LOUISIANA 70791 TELEPHONE: (225) 654-6801 FACSIMILE: (225) 654-3268

November 11, 2003

Right-To-Know Unit Office of State Police Transportation & Environmental Safety Section Post Office Box 66614 Baton Rouge, Louisiana 70896-6614

Re: UNAUTHORIZED DISCHARGE NOTIFICATION REPORT

Benzene Phosphorus Dichloride Fire and Hydrochloric Acid Release on September

17, 2003

Incident Number: 03-06514

Root Cause and Corrective Actions

Dear Sir or Madam:

Pursuant to the requirements of LAC:33.I.3925.B.8 and LAC:33.I.3925.B.13 Ferro Corporation is providing this follow-up notification to the LDEQ that identifies the root cause of the Benzence Phosphorus Dichloride Fire and Hydrochloric Acid Release incident of September 17, 2003 and the corrective actions by Ferro Corporation to be taken to prevent a recurrence.

A root cause investigation was performed which indicated the direct cause of the aforementioned incident was equipment failure (there was a hole in the outlet elbow of the pump). The identified root cause of the incident was found to be an employee failed to follow management of change procedure and installed the incorrect material of construction, thus rendering the replacement not suitable for the service and causing the failure. Had the correct material been used the discharge was preventable.

Ferro has identified the following corrective actions to prevent the recurrence of the incident:

Review and upgrade standards to address all aspects of handling, operating, and maintenance of high risk chemicals on site. This will include when and how to take corrective actions, responsibilities, actions to take in event of recognized deficiencies or system failure, and definitions of acceptable risks.

Reinforce prior education of employees on their responsibilities regarding high risk

chemicals and processes.

- Provide further accident prevention/hazard awareness training for all employees.
- Provide additional annual MOC training with testing for all operating and maintenance personnel.
- Verify that all pumps in high hazard service unit are appropriate for the service.
- Inform all employees of details of incident investigation.

Should you require further information, please feel free to contact me at the address above or by telephone at (225) 654-6801, extension 5604.

Sincerely,

Ed Frindt

Plant Manager

cc: J. Pruitt, Ferro Corporation

1 Junt

K. Khonsari, Ferro Corporation

East Baton Rouge Parish Emergency Planning Committee Post Office Box 1471 Baton Rouge, Louisiana 70821

Attn: SPOC

Unauthorized Discharge Notification Report Louisiana Department of Environmental Quality Post Office Box 82215

Baton Rouge, Louisiana 70884-2215



Date Issued: 1/15/90 Supercedes: 11/15/89

MATERIAL SAFETY DATA SHEET

FERRO CORPORATION GRANT CHEMICAL DIVISION P. O. BOX 263 BATON ROUGE, LOUISIANA 70821

FOR CHEMICAL EMERGENCY, CONTACT CHEMTREC 800-424-9300 FERRO INFORMATION 216-641-5324 GRANT CHEMICAL INFORMATION 504-654-6801

PRODUCT : NAME

HYDROCHLORIC ACID

SYNONYMS: Hydrogen Chloride

*CHEMICAL FORMULA: HC1

MOLECULAR WEIGHT: 36.5

CAS NO.: 7647-01-0

COMPOSITION: 15-30% in water

SHIPPING NAME AND HAZARD CLASSIFICATION:

DOT: Hydrochloric acid, Corrosive Material, UN 1789

HAZARD SUBSTANCE(S)/RQ(S): "RQ" - 5000 lbs/2270 Kg.

If a discharge of the contents of this container and other containers in this shipment equal or exceed, in 24 hours, the "RQ" amount shown above, immediately report the discharge to the National Response Center 1-800-424-8802.

Note: Other notifications may be required in accordance with State and Local regulations.

TSCA INVENTORY:

X YES

PHYSICAL DATA

APPEARANCE: Clear to slightly hazy CDOR: Irritating, pungent odor

liquid.

SPECIFIC GRAVITY (20/20°C): 1.194 VAPOR PRESSURE (20°C, mmHg): >1

BOILING POINT (°F,760mmHg): 215

VAPOR DENSITY (AIR=1): 1.27

SOLUBILITY IN WATER: 100%

EVAPORATION RATE

(BUTYL ACETATE=1): N/A

% VOLATILE: 100

MELTING POINT(°F): N/A

HEALTH HAZARD DATA

CHEMICAL LISTED AS CARCINOGEN (NTP., OSHA, OR IARC): ___ YES _X NO

ROUTES OF ENTRY: Inhalation, ingestion, and skin contact.

PHYSIOLOGICAL EFFECTS: SHORT TERM EFFECT OF OVEREXPOSURE.

IN CONTACT WITH SKIN: May cause severe irritation, inflammation, or burns to skin.

IN CONTACT WITH EYES: May cause irritation, severe burns, and permanent damage with loss of sight.

INHALED: (LC₅₀ 4416ppm (OSHA PEL <u>5ppm</u>) (ACGIH TLV<u>NF</u>)
Rabbits)

May cause irritation of the respiratory tract with burning, choking, and coughing. Severe breathing difficulties my occur which may be delayed in onset. Ulceration of the nose and throat may occur.

INGESTED: (LD_{so_900mg/Kg rabbits_)}

May cause burns of the mouth, throat, and stomach.

LONG TERM EFFECT OF OVEREXPOSURE.

Repeated exposure may cause erosion of the teeth. Repeated exposure of the skin to dilute solutions may cause skin rash.

EMERGENCY FIRST AID PROCEDURES

SKIN: Wash or shower affected area with large amounts of water. Remove contaminated clothing immediately while washing affected area. Contact a physician.

EYES: Wash eye immediately with large amounts of water, frequently lifting the lower and upper lids for at least 15 minutes. Contact a physician.

INHALATION: Move the exposed person to fresh air. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Contact a physician.

INCESTION: If conscious, give large amounts of water. Do not induce vomiting. Contact a physician.

MEDICAL ADVICE: A pre-assignment examination should be conducted to detect any condition that might increase risk, such as skin abnormalities, and respiratory disease. Annual examination of the respiratory system, skin and eyes should be conducted.

CONDITIONS TO AVOID:

HAZARDOUS

(WILL OCCUR_

POLYMERIZATION: (WILL NOT OCCUR

PRODUCT NAME: Hydrochloric acid

page 4

SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IN EVENT OF RELEASE OR SPILL: Keep unprotected persons away from spills. Collect or confine spills in the most convenient and safe manner. Reclaim spilled material if possible, if not possible, dilute and or neutralize and dispose in accordance with all State and Local regulations.

NEUTRALIZING CHEMICAL(S): Use alkali to neutralize dilute solutions.

WASTE DISPOSAL: Dilute and neutralize solutions. Dispose of in accordance with all State and Local regulations.

SPECIAL PRECAUTIONS

This chemical is subject to the reporting requirement of section 313 of Title III of the Superfund Amendments and reauthorization Act of 1988 and 40 CFR Part 372.

Judgments as to the suitability of information herein or purchaser's purposes are necessarily the purchaser's responsibility. Reasonable care has been taken in the preparation of this information, but Ferro extends no warranties, makes no representations and assumes no responsibilities as to the accuracy or suitability of this information for any purchaser's use or for any consequence of its use.

For further information contact:

Director of Laboratory Services Grant Chemical Division P.O. Box 263 Baton Rouge, La 70821 (504) 654-6801

N/A = not applicable.

NF = not found



SETTLEMENT PAYMENT FORM



Please attach this form to your settlement payment and submit to:

Department of Environmental Quality Office of Management and Finance P. O. Box 4303 Baton Rouge, Louisiana 70821-4303

Attn: Darryl Serio, Fiscal Officer

			Payment #_				
Resp	ondent: FERRO CORPORATION	ON					
Enfor	cement Tracking No(s): AE-	CN-03-0338					
Paym	ent Amount:						
Al Nu	mber: 3387		·				
Alterr	nate ID No(s):						
TEMP	O Activity Number:						
	For Official Use Only. Do Not write in this Section.						
	Check Number:	Check Date:					
	Check Amount:	Received Date:					
	PIV Number:	PIV Date:					
	Stamp "Paid" in the box to the right and initial.						
	Route Completed form to:						
	Peggy Hatch, Administrator Enforcement Division						
	And copy Chris Ratcliff, Legal Division						

P. O. Box 3197, Baton Rouge, LA 70821-3197 (Domestic Mail Only; No Insurance Coverage Provided) For delivery information visit our website at www.usps.coma Postmark Here CERTIFIED MAIL," RECEIPT Breazeale, Sachse & Wilson, L.L.P. U.S. Postal Service™ Mr. John B. King PS Form 3800, June 2002 Total Postage & Fees Postage Certified Fee Return Reciept Fee (Endorsement Required) Restricted Delivery Fee (Endorsement Required) 4582 5560 EDOS 0000 0000 0922 E002

See Reverse for Instruc

	COMPLETE THIS SECTION ON DELIVERY	A. Signature	B. Received by (Printed Name) C. Date of Delivery	D. Is delivery address different from item 1? ☐ Yes. If YES, enter delivery address below: ☐ No.		3. Service Type Ef Certified Mall	☐ Registered ☐ Return Receipt for Merchandise ☐ Insured Mail ☐ C.O.D.	4. Restricted Delivery? (Extra Fee)	ביים ביים מיים מיים ביים כיים כיים כיים כיים כיים כיים כ
.	SENDER: COMPLETE THIS SECTION	Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.	 so that we can return the card to you. Attach this card to the back of the mallplece, or on the front if space permits. 	1. Article Addressed to:	Mr. John B. King Breazeale, Sachse & Wilson, I.I.P.	P. O. Box 3197 Baton Rouge I A 70821 2107	/615-1700/ V7 (1900) 10000 (1)		2. Article Number

102595-02-M-1540

Domestic Return Receipt

PS Form 3811, August 2001 (Transfer from service label)